For Reference

NOT TO BE TAKEN FROM THIS ROOM

THE UNIVERSITY OF ALBERTA

AN EXPERIMENTAL APPLICATION OF THE PRINCIPLE

OF INCONGRUITY TOLERANCE TO THE COUNSELING SETTING

by

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# ABSTRACT

The purpose of this investigation was to develop a comprehensive review of psychological and sociological literature which impinged upon the hypothetical construct which is here referred to as the principle of congruity. From this review, a theoretical framework describing the act of striving for congruous states was evolved, thus attempting to synthesize the postulations of the several theorists reviewed. An experimental study based on one aspect of this behavioral act emanated from this theoretical framework.

Many references made pertinent but overlapping contributions to an understanding of the principle of congruity, thus making it difficult to distinguish between the various approaches. It was noted that the majority of the theoretical statements lacked supportive experimental evidence. The central concept used as a link between the various approaches involved the learned behavioral act of striving for congruity among various cognitive elements. Most theorists seemed to postulate that the individual is naturally intolerant of incongruous states, finding them unpalatable and thus also immediately initiating avoidance behavior aimed at restoring congruous states. Very few writers, however, attempted to explain the motivational mechanics of such behavior. It was also postulated in this

theoretical framework that those cognitive elements which
result from interpersonal relationships are important con-
siderations in an understanding of a striving for congruity.
The roles of intrapersonal, interpersonal and cultural or
normative forces must be given equal stress in order to
attain a comprehensive theory of intolerance of incongruity.
It would also seem apparent that attempts must be made to
further integrate, rather than separate, psychological and
sociological knowledge relevant to the principle of
congruity.

An experiment involving forty-one volunteer
university freshmen (men and women) in a total of nine
counselling-type group discussions seemed to indicate that
as a group the fourteen subjects in the experimental group
learned to tolerate the arousal concurrent with the advent
of incongruity. Three personality scales were used and
significant changes were made by this group of subjects on
personality variables from two of these three tests. These
changes coincided with those which would be predictable
from the basic theoretical framework established here. It
is believed that such a conclusion would have important
implications in the areas of education and counselling
psychology.

# ACKNOWLEDGEMENTS

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# CHAPTER I
## STATEMENT OF THE PROBLEM

Any attempt to synthesize seemingly divergent psychosociological concepts involves a laborious but necessary operation. Further, to aspire to apply one such concept in an experimental setting at times appears to transcend the bounds of currently accepted experimental and statistical methodology. The significance of the experimental approach in both psychology and sociology is undeniable, but yet it does seem plausible that certain phenomena cannot be subjected to rigorous scientific validation. One of the major limitations curtailing such an effort is imposed by the lack of sensitive measurement instruments, particularly when personality variables are the subjects of examination.

Roe (1959) propounds the view that a revitalized use of human awareness, "Man's forgotten weapon", is necessary if we are to avoid losing the world by default. Roe confesses to

a great weariness with the present concentration upon technical minutiae, with better and better research design for matters of less and less importance. Indeed, it often seems that the correlation between goodness of design and importance of project is remarkably high and negative. (p.262)

With such a projection providing the needed support and striving to appear oblivious to the concomitant weaknesses of such an endeavour, the present investigation

attempts to synthesize as much of the pertinent theory
relative to the principle of congruity as is deemed feasible
and then to evolve an experimental application of this con-
cept in light of the theoretical framework synthesized from
the various psychological and sociological theorists.
Rokeach (1960) refers to this concept terming it as the
"principle of belief congruence" and pointing out that it
may be similar to the approaches of Festinger (1957),
Heider (1958) and Osgood (1955). Rokeach concludes that

> It would be a worthwhile task to examine more closely
> the extent to which these various concepts overlap
> each other, the respective ranges of their application,
> and how they may be more integrated with each other.
> (p.395)

Herein lies the purpose of this investigation. An attempt
will be made throughout the review of relevant theoretical
statements and experimental studies to reveal that most
authors basically assume that the existence of incongruity
is naturally contiguous with an effort by the individual to
alleviate the incongruity. It will then be postulated that
tolerance of incongruity can be an advantageous personality
trait, one which can be acquired under conducive environ-
mental conditions. The experimental portion of this
investigation endeavoured to study the feasibility of
placing university freshmen in a learning situation aimed at
developing incongruity tolerance by means of informal group
discussions.

CHAPTER II

PRELIMINARY THEORETICAL FRAMEWORK AND DEFINITION OF TERMS

It would appear salutary to both clarity and unity of presentation of the literature to be reviewed if a percursory attempt was made to pinpoint the theoretical constructs which will form the framework for the studies reviewed.

Congruity itself is an abstract term which would be classified as a hypothetical construct in psychological study of human behavior and personality. With some liberal extension such terms as ambiguity, inconsistency, uncertainty, conflict, incompatibility, conformity, imbalance, asymmetry, dissonance, disharmony, and incongruence can be regarded as contingent upon the principle of incongruity. All of these concepts represent the existence of intrinsic or extrinsic conditions (physiological, sociological or psychological) which induce tension or emotional arousal within most individuals, a state which they usually find unpleasant and thus inevitably strive to alleviate. This paradigm of incongruity → tension → behavior → congruity would appear to be habitual for most individuals, an example of operant conditioning, as demonstrated in the studies subsequently reviewed.

Congruity – the resultant specific state of physiological and psychological balance which the individual

experiences when two or more fitting (like) cognitive elements interact positively and which he finds is quite pleasant and satisfying. This state could be achieved purely within the individual himself irrespective of other persons or it could be attained in his relations to other persons. If the individual experiences a feeling of attraction for another person or a group of persons and this feeling is reciprocated, it could be said that the resultant state is one of interpersonal congruity for the individual.

Incongruity - the antithesis of congruity which results when two or more unfitting or dissimilar cognitive elements interact. Individuals usually undergo arousal of emotion when they are incongruous.

Cognitive Elements - are knowledges, beliefs, attitudes and opinions which the individual possesses or with which he comes into contact. If input information which the individual acquires as a receiving-responding organism contradicts accepted cognitive elements and the individual realizes this discrepancy, it can be said that incongruity is experienced. Whether he reacts to the incongruity is another question, as is his type of response. Novel cognitive elements may accrue as a result of the individual's own insight (a product of much independent cortical activity) or from complex bodily sensations, or from his interaction with his environment or persons within that environment.

State of Arousal - the physiological and psychological state of tension which the individual experiences upon receipt of stimuli which are incongruous with currently accepted cognitive elements. In line with Berlyne's (1960) formulations, the tension is part of the cognitive vigilance or readiness of the individual, a function of the reticular activating system. Arousal can perform a facilitatory or an inhibitory role depending on many factors, one of which is the degree of arousal. Berlyne postulates that maximum vigilance probably correlates with moderate arousal. It could be said that if this optimum level of arousal is exceeded, activity of the individual will be impeded; such a state of arousal could make it very difficult for the individual to resolve the incongruity.

Striving for Congruity - the acquired propensity which seems to be prevalent with most individuals to act in such a way when experiencing incongruity so that congruent states among cognitive elements will be restored. Berlyne (19 60) has also pointed out that the cerebral cortex functions as an inhibitory feedback mechanism which if given adequate time to readjust to activating stimuli can exercise a control on the reticular activity system, preventing arousal from getting out of hand. It would thus seem plausible that the individual can consciously exert some control on the amount of arousal as well as upon the behavior resultant from this arousal.

Tolerance of Incongruity - the acquired ability to control the arousal concomitant with the occurrence of incongruity. This is postulated to involve the individual feeling sufficiently in control of the incongruent situation that he does not immediately, habitually attempt to resolve the incongruity and alleviate the state of excess arousal. It is also postulated that for such an individual the experience of incongruity could be pleasant and satisfying and, because it promotes an optimum level of arousal potential for the individual, this incongruity tolerance could be conducive to more adequate adjustment.

Intolerance of Incongruity - the acquired inability to control the arousal concomitant with the occurrence of incongruity. It is also postulated that this could include an anticipatory set toward incongruity, through which the individual may even try to avoid incongruous situations because he can anticipate the unpalatable state of arousal which will accompany the incongruity. Such intolerance of incongruity inevitably leads to a striving for congruity.

In the literature relevant to this concept, the implications of incongruity have been studied mainly in respect to the avoidance behavior which is usually motivated from the occurrence of incongruity. Few theorists have suggested that incongruity could be a desirable motivational factor. The paucity of theoretical and, more particularly, experimental information relevant to this phenomenon does not mean that it should be subjugated to an insignificant role.

## CHAPTER III
## REVIEW OF RELATED LITERATURE

### A. Delimitation of the Area Reviewed

The principle of congruity is reviewed here primarily in respect to the contributions which can be made to the study of personality and behavior theory. Because of the scarcity of experimental studies specifically relating to this topic, no obvious limitations had to be imposed upon the area reviewed other than keeping within the boundaries of psychology and sociology. It seems that the major portion of the literature is concentrated in the period of the past two decades. The main theories stressed here are of fairly recent inception, however, the framework on which they are based extends much more into the past. The extent of the area covered by accessible articles was the major factor in delimiting the boundaries of this review.

Many of the experiments reviewed lack desirable statistical methodology and advanced technical instrumentation but they do seem to possess an awareness of that which is fundamental to a more complete understanding of human personality and behavior. The theory underlying the literature reviewed here appears to be of utmost importance and the fact that nearly all of the experimental studies have been conducted since 1950 would seem to indicate that this is a relatively new area of study, one which has not

yet attained the rigorous format of experimental proof.
Further experimental verification of the basic theoretical
framework is necessary but this is not easily attained when
the objects of study are such hypothetical constructs as
tolerance and intolerance of incongruity.

### B. Organization of the Review

Grouping individual studies with the hope of
generalization runs the danger of oversimplification and
loss of vital information. Such an endeavour seems
necessary, however, if coherence and unity of theory is to
be attained. The material reviewed will be grouped into
three arbitrarily selected categories. The first consists
of studies which stress congruity among cognitive elements.
This is actually the only "real" division because all
applications of the principle of congruity involve a striv-
ing for congruity among cognitive elements. However, some
studies seemed to be more adequately allocated in one of
two other categories. The second contains a group of
investigations which apply the principle of congruity to
the self concept. The final category embraces research and
theory on congruity relevant to interpersonal relationships.

No attempt has been made to rank the studies in
respect to time of occurrence. The articles reviewed in
each category are further subdivided in accordance with
the theorist who propounded the theoretical framework on
which they are based.

C. Review of the Literature and Evolvement of the
Theoretical Framework

1. Principle of Congruity Related to Cognitive Elements

(a) Festinger

The term "cognitive dissonance" was introduced by
Festinger and the theory postulated under this concept
formed the bases for a number of subsequent studies. In
his major reference, Festinger (1957) defines dissonance to
be existent as a result of non-fitting relations among
cognitions. Considering pairs of cognitive elements as basic
to behavior or knowledge, Festinger considers that dissonance
arises when the obverse of one cognitive element follows
from the existence of the other element of that pair.

> The existence of dissonance, being psychologically
> uncomfortable, will motivate the person to try to
> reduce the dissonance and achieve consonance. (p.6)

The theoretical framework is constructed to be quite all
inclusive. Cognitive dissonance theory has been used to
explain: decision making and post-decision behavior, the
effects of forced compliance, the consequences of voluntary
and involuntary exposure to information, social influence,
and striving for social support. The extent of the research
makes Festinger's theory the bases of this present invest-
igation in which the liberty has been taken to substitute
the concepts "congruity" and "incongruity" for those of
Festinger. The main limitation of this theory and the

related experimental studies is that group behavior, as stressed in social psychology, has been emphasized especially in the area of forced compliance. Consideration of diadic or triadic group behavior is limited in dissonance theory and this would seem to indicate that a combination of this with the ideas postulated by Secord and Backman (1961) would be both feasible and beneficial. The inter-personal approach to human personality and behavior must also be supplemented by a study of intrapersonal forces as well as cultural, normative and institutional influences.

Festinger gives some attention to the motivational aspects of dissonance pointing out that dissonance is psychologically uncomfortable and thus the individual is motivated to dissonance reduction behavior aimed at culminating in consonance. No attention is given, however, to the reasons why dissonance is unpleasant or to the fact that there are many individual differences is dissonance tolerance. A survey by Coch and French (1948) of the resistance to change among employees at the Harwood Manufacturing Company reported results which would exemplify dissonance reduction theory. Here dissonance between cognitions of forced compliant behavior and those of private opinion were reduced by return to the original consonant behavior once the compliance forces were removed. An incident involving one woman employee who slowed her production level down to

meet with her working group demands but increased her output again once she was returned to solitary working conditions demonstrates the subjection of private opinion and the eventual reduction of dissonance.

The survey of Coch and French (1948) also presents an illustration of a discrepancy in dissonance theory as propounded by Festinger. Dissonance has been defined as the logical contradiction of two cognitive elements, so that if one exists the other cannot. This does not seem to be validated by such studies as the one of this woman employee who obviously tolerated the dissonant elements mentioned above before finally resolving the dissonance. It would seem plausible that some persons can tolerate dissonant elements indefinitely and thus these elements can and do exist side by side. Further, studies on the phenomenon that an individual will change his overt behavior but not necessarily his private beliefs as a result of dissonance with public influences give further support to this criticism as well as demonstrating the motivational implications of dissonance.

Some of the experimental studies supposedly supporting dissonance theory appear to be studying other variables rather than consonance - dissonance. The studies by Janis and King illustrate this point as they seem more interested in social role theory than dissonance theory.

Janis and King (1954) induced subjects to play social roles in which they expressed ideas which were not necessarily their own, thus presumably becoming involved in dissonance. This experiment produced rather inconclusive evidence that subjects who were required to prepare and present a written communication to two other persons, who simply read the relevant information and then listened to the presentation, rated their opinions on the topic with higher confidence than the passive controls. In a second experiment profiting from this information, King and Janis (1956) used one main topic for the communications (rather than three different topics as in the first experiment) and three separate roles for the subjects, including: improvise and present a communication to the group, present an already prepared communication to the group, or read a communication to themselves. The first condition produced significantly better results supporting the hypothesis that active role playing produces more opinion change. It seems questionable whether private opinion change was induced through these experiments. Dissonance undoubtedly did arise as the opinions in the communications which the subjects were encouraged to read, listen to, or verbally present, conflicted with the subjects' original opinions, but it does seem possible that the subjects were not subjected to any involved social pressures, thus these experiments cannot be considered as involving "forced compliance".

The subjects were volunteers and certainly did not constitute cohesive groups. It is also apparent that the topics of the communications would not have been of equal interest to all subjects; they might have varied also in difficulty of comprehension and they may not have involved ideas on which the feelings of the subjects would have been equally divided so that opinion changes in both directions could be possible. It would also seem plausible that the lack of opinion change which was noted in the second experiment for a group of passive control subjects, who listened to and made notes on presented communications, may have been a result of the fact that they were busily engaged in taking notes rather than attempting to comprehend the communication.

A more adequate study of dissonance induced as a result of forced compliance was conducted by Kelman (1953) using response restriction. In one of the few dissonance studies not to use college volunteers as subjects and thus avoiding intelligence, socioeconomic and motivation biases to a certain extent, Kelman asked 246 grade seven subjects to express their opinions on either one of two types of comic books. In line with the findings of the Coch and French (1948) study, a high degree of conformity was found in the "high restriction" group (significant at the 1% level by a Chi-square test), but the greatest degree of attitude change was found in the "low restriction" group (at the 7% level by a two-tailed t test). Response restriction was

accomplished by size of rewards which were offered for compliance. The findings would support dissonance theory statements that forced compliance may elicit changes in overt behavior but not necessarily private opinion changes. Kelman found that the "low restriction" group made fewer interfering responses in opinions written in their essays and he uses the pressure hypothesis to explain this result, stating that the greater the felt pressure to conformity, the more interfering responses are developed and the smaller will be the amount of opinion change. Kelman seems to assume that intermittent punishment would have the same effect as partial reward in inducing opinion change but this seems rather doubtful. Also, his pressure hypothesis does not explain the responses of the control (non-restricted) group which made the fewest opinion changes and showed the least degree of conformity.

Festinger (1957) has stated that the actual magnitude of dissonance which will exist will be a function of the importance of the two dissonant elements, or if the dissonance involves clusters of these cognitive elements, then it is a function of the proportionate weights of relevant elements in each cluster. He notes that:

> The maximum dissonance that can possibly exist between any two elements is equal to the total resistance to change of the less resistant element. (p.28)

In a more recent article (1961), Festinger dealt with the

implications of partial or insufficient rewards on the

magnitude of dissonance produced. He quotes experiments by

himself and others which are purported to demonstrate that

partial or delayed reward during training trials with rats

tend to increase resistance to extinction of that learned

during later experimental trials. Festinger explains this

phenomenon by the magnitude of dissonance which is intro-

duced by the insufficient reward or the complete absence of

reward, the absence of reward being dissonant with the desire

for reward.

> As long as the organism is prevented from changing his
> behavior, the dissonance tends to be reduced by develop-
> ing some extra preference about something in the
> situation. The extinction of this extra preference
> leads to the stronger inclination to continue running
> during extinction trials. (p.9)

Here dissonance has the effect, according to Festinger, of

resisting extinction of the running behavior of the rats,

something which was not found among rats who were consistent-

ly rewarded. Here partial reinforcement seems to have quite

different effects than those observed by Kelman (1953) where

it facilitated opinion change. Perhaps these are mutually

independent phenomena. Perhaps Festinger is erroneously

attempting to generalize from animal behavior in experiment-

al conditions to dissonance theory applicable to human

behavior in real-life situations.

Aronson and Mills (1959) found that subjects who

went through a very unpleasant initiation procedure to

obtain entrance into a supposedly desirable discussion
group tended to increase their liking for that group. This
experiment seems to validate Festinger's predictions
regarding partial reinforcement in respect to human
behavior. Here, as in experiments with rats, the expect-
ations of the subjects were dissonant with the actual
reward received because of the pain involved in arriving
at the goal and the undesirability of the goal itself. This
dissonance is resolved by the subject by developing a
preference for the activity to which he was subjected or by
assuring himself that the goal is attractive just as the
rats in Festinger's (1961) study developed a preference for
running or for the goal box in the maze, thus resisting
extinction of this behavior. Festinger's explanation of
such behavior seems plausible. The differences in behavior
in these experiments would be explained as functions of the
magnitude of dissonance created.

Dissonance reduction can take many forms, all of
which involve changes in or additions to existing dissonant
cognitive elements. A cognitive element relative to the
individual's own behavior or the behavior of those with
whom he interacts may be changed or new elements may be
added as in the receipt of additional information which
will favor one of the dissonant elements or simply recon-
cile them. These changes or additions may be difficult

because of pain involved or losses accrued or because the present behavior is satisfying and thus is resistant to change or because the element involved in the change is consonant with a large number of other elements. Therefore, the anxiety associated with dissonance reduction may be greater than that associated with the dissonance itself. Although Festinger does not specifically mention it, the individual experiencing such a problem could resort to the use of defense mechanisms or misinterpretation, misperception or distortion as more desirable devices to facilitate immediate dissonance reduction.

Mills (1958) observed attempts at dissonance reduction involving moral attitudes after persons had been placed in a situation involving temptation. He created among his subjects variations in motivation to cheat in a contest by offering differential rewards for winning and various opportunities for cheating. Mills postulated that dissonance is evolved when an individual has to decide whether or not to violate a moral standard.

> More dissonance is created for an honest person when the motivation to cheat is higher and when the restraints against cheating are lower; attitudes toward cheating should become more severe when the motivation is higher or when the restraints are lower. (p.518)

Mills found that subjects who decided not to cheat, when tempted became more severe in their attitudes toward cheating while subjects who cheated became more lenient.

Thus cheaters would resolve the dissonance of violating a moral standard by changing their cognitive elements regarding this behavior, thus becoming less stringent in their attitude toward cheating, hoping to dispel any residual dissonance existing between their chosen alternative and the advantages of its opposite.

A great proportion of dissonance theory has been applied to social communication and social support. Festinger notes that the social group is a source of dissonance when disagreement exists among its members. The individual experiencing dissonance in such a setting may seek to change his opinions to make them compatible with what he thinks others believe, or he may attempt to influence the persons with whom he disagrees to change their opinions, or he may try to make these persons seem incomparable to himself. The individual will tend to use greater effort in employment of one or more of these techniques,

> as the relevance of opinion is increased, as the
> attraction of the group is increased, and as the
> number of other cognitive elements consonant with
> the opinion is decreased. (Festinger, (1957), p.183)

A number of experimental studies in connection with social influence and communication processes have been conducted under Festinger's supervision related to dissonance in group situations. Back (1951) attempted to measure the effect of strength of cohesiveness of a group on the pressure toward uniformity by manipulating cohesiveness in

various groups comprised of 250 paired subjects and observing social influence in written response to projective type pictures. He found that the high cohesive groups showed significantly more pressure toward uniformity and influence and produced more opinion changes but the level of significance for this latter finding was not too acceptable.

In a similar experiment, Festinger et al (1952), manipulated the variable of cohesiveness as well as: the presence of "experts" on the discussion problem, the presence of a correct solution to the discussion problem and the proportion of conformers and deviates in each group. The cohesiveness variable functioned in the same way as in Back's study. They also found that when a fictitious distribution of opinions was reported to the group, before any influence was exerted, significantly more deviates than conformers changed their opinions (1% level of significance by Chi square test). All but one of these changes were toward the group modal opinion; therefore, dissonance was reduced by changing opinions toward those purportedly accepted by the group.

The Festinger et al study (1952) induced more extreme deviate opinions than similar studies because the opinions were not equally distributed on either side of the problem considered by the subjects. Thus they were able to find that the conformers tended to communicate with persons

holding extremely divergent viewpoints while the deviates
who did not change their opinions favored communication
with persons holding similar opinions.  Thus the extreme
deviate, probably the person experiencing the most disson-
ance, initiates communication to gain social support to
relieve the existing dissonance.  It was found that the
deviates, especially in the high cohesive groups,
communicated more than conformers (communication was meas-
ured by the number of words written in attempts to communic-
ate with another group member).  Festinger and Thibault
(1951) did not find this evidence of communication among
the deviate group members, as their results showed only that
the greatest amount of communication was toward these
members especially in groups where pressure toward uniform-
ity of opinion was greatest.  They also found that as
pressure toward uniformity increased, there was a corres-
ponding increase in change toward unity of group opinion.

Brodbeck (1956) used a tape-recorded speech which
propounded views on a contraversial topic which were
opposed to the opinions held by the majority of the group
members.  This experimenter found that subjects whose
confidence in a belief was shaken by exposure to propaganda
tended to choose to communicate with persons who disagreed
with them, much less frequently than subjects who remained
at the same level of confidence.  This would perhaps give
additional explanation to the finding by Festinger et al

that conformers (probably high in confidence) tended to communicate with persons of divergent opinions and deviates (probably low in confidence) tended to communicate with fellow deviates. These studies do give some indication of the effects of dissonance in group interaction and resultant attempts at dissonance reduction. Just how permanent the opinion changes are in these experiments is actually extraneous.

It is evident that the effects of dissonance in group structures is largely dependent on the heterogeneity - homogeneity and non-coherence - coherence of the groups. Schachter (1951) used a number of paid "stooges" in each experimental group including: a"slider" who gradually moved toward the modal opinion; a mode; and a confirmed deviate. He found that members who do not conform are rejected from the group, either covertly or overtly. Schachter therefore concluded that when dissonance develops

> the strength of the pressures toward uniformity that
> a group can exercise on its members will vary with
> the cohesiveness of the group and the relevance of
> the issue to the group. (p.195)

Gerard (1953) found greater pressure toward uniformity in homogeneous groups and a greater tendency to subdivide (i.e. to rearrange the group boundaries to exclude persons of deviate opinion) the group in hetergeneous groups. Some sensitive measurement of group cohesiveness and homogeneity is therefore obviously necessary if reactions to dissonance

in social structures are to be predicted. Even then the individual personality variable cannot be neglected.

The question of the applicability of the findings of such studies as the aforementioned relative to the topic of dissonance is imminent. Most of them involve "laboratory investigations" and generalizing their results to real life situations    may exceed the bounds of logical inference. Few of the experimenters seemed to be restrained by this thought. In many of these experiments, subjects were in essence "forced" to listen to or read persuasive communications while in a practical situation this seldom occurs. Most of these experiments involved biased samples of volunteer students and once more making generalizations to the total population could be classified as "unscientific". In many of the experiments no control groups were used, statistical methodology seemed questionable and presentation of the data lacked clarity and coherence. Another inherent limitation of this type of study is the perplexing problem of determining whether publicly expressed opinion change is, in fact, real opinion change involving the subjects' private convictions. The need for more sensitive opinion measurement instruments is apparent. In the experiments studying social influence on individual opinions no standardized time limit for discussion periods was used. Schachter (1951) used 40 minute verbal interaction periods while Festinger et al (1952) used 10 minute written

communication sessions. It could be postulated that the

separate time limits, let alone the different discussion

methods, would have a significant differential effect on

the resultant opinion changes.

It is undeniable that Festinger's dissonance theory

and the related experimental studies make significant contri-

butions to the general body of knowledge regarding the

principles of congruity. This has provided an adequate

foundation for this concept and led the way for much

exploratory research on the topic. Atkinson (1960) supports

Festinger's approach which he says counters

> an imbalance in current literature on motivation and
> mechanisms of defense which concentrates so heavily
> on the antecedents of conflict and decision. (p.279) ..

Herein lies a limitation of dissonance theory for little has

been said about the actual development of dissonance reducing

behavior. It seems only that the advent of this activity is

contingent upon the occurrence of dissonance. Dissonance

reduction is apparently an almost automatic response

judging from Festinger's statements (1957):

> the reality which impinges on a person will exert
> pressures in the direction of bringing the appropriate
> cognitive elements into correspondence with that
> reality. (p.11) .... the presence of dissonance gives
> rise to pressures to reduce that dissonance. (p.263)

Such statements seem to ignore the possibility of individual

differences in dissonance reduction behavior or the fact

that some persons may be able to cope with more dissonance

than others, even to the extent of deliberately seeking

dissonant cognitive elements.

Berlyne (1960) objects to the mutually exclusive nature of dissonant elements and would replace this concept with the idea of conflict between concurrently existent elements. This would seem more in line with further studies on the principle of congruity and thus would support the hypothesis that tolerance of incongruity is possible, something which seems unacceptable in Festinger's terms. Much of the specific motivational psychology behind dissonance theory has been omitted from the theoretical considerations of Festinger and his followers.

Festinger's application of dissonance theory to such topics as the consequences of decisions is irrefutable and worthy of commendation. He demonstrates that the chosen alternative will be dissonant with the rejected alternative and that an active seeking out of supportive information will be engaged in by the individual who is seeking consonance. The fact that decisions are difficult to reverse would seem to validate the hypothesis that post decision dissonance had been successfully reduced. The research on forced compliance and social influence adds much to psychological and sociological theory. The applications of dissonance theory to the concept of partial reinforcement makes a contribution to learning theory in respect to the use of partial or delayed rewards. In personality theory too the

effects of such concepts could be momentous. It would seem
plausible that the creation of a logical amount of dis-
sonance, commensurate with the abilities and capacities of
the individual, could be instrumental in the development of
such personality traits as persistence. Festinger (1961)
signified this when he stated:

> It seems clear that the inclination to engage in
> behavior after extrinsic rewards have been removed
> is not so much a function of past rewards them-
> selves. Rather, and paradoxically, such persistence
> in behavior is increased by a history of non-rewards
> or inadequate rewards. (p.11)

Festinger's emphasis on the study of man in relationship to
his social group is perhaps indicative of a much needed
liaison between psychological and sociological theory.

### (b)  Osgood

Osgood and Tannenbaum (1955) related the principle
of congruity to the connotational meaning of concepts as
measured by Osgood's semantic differential scale. These
theorists stress the function of the principle of congruity
in the process of attitude change; a process in which the
principles of susceptibility and resistance are also
stressed. Congruity here signifies an harmonious unity
between an individual's overt attitude or evaluation of a
concept and his judgmental frame of reference.

Osgood has concluded that the factor of highest load-
ing in meaning is attitude. In the attainment of the
meaning of a concept, an individual is actually making an

evaluative judgment about that concept. This evaluation

constitutes his attitude toward that concept. Osgood (1952)

describes the operations involved in his meaning measurement

instrument as necessitating:

> The subject's allocation of a concept within a
> standard system of descriptive dimensions by means
> of a series of independent associative judgments.
> Presented with a pair of descriptive polar terms
> (e.g. rough and smooth) and a concept (e.g. lady),
> the subject merely indicates the direction of the
> association (e.g. lady - smooth). (p.228)

The "direction of the association" is dependent on the

subject's attitude toward that concept and the subject

attempts to depict this by placing the concept somewhere on

a 7-point scale between the pair of descriptive polar terms.

Osgood and Tannenbaum (1955) point out that

> changes in evaluation are always in the direction
> of increased congruity with the existing frame of
> reference. (p.43)

Unlike other theorists dealing with the principle of

congruity such as Festinger (1957), Rogers (1959) and Secord

and Backman (1961), Osgood and Tannenbaum seem to feel it is

possible to have varying attitudes toward concepts without

any felt incongruity or any desire to change one's attitudes.

This can persist indefinitely, as long as an individual

does not try to associate the concepts which together would

constitute incongruity. Osgood and Tannenbaum have taken

one aspect of Festinger's dissonance theory (or of the

principle of congruity) and developed it. They stress the

congruity or consonance between the cognitive elements

relative to value judgments and those relative to overtly displayed evaluative attitudes.

An inherent aspect of the principle of congruity in the area of meaning is the congruity or incongruity of the individual's evaluative attitude toward the source of information and the attitude toward the concept imparted by this source. Every time an individual receives incoming information which makes an assertion about two or more objects of judgment, an issue of congruity is involved. If both objects of judgment (such as a source and the concept imparted, or two different concepts) are evaluated by the individual as either equally negative or equally positive, maximum congruity results. (e.g. A respected politician advocates an acceptable policy - both positively rated, therefore congruity results.) Incongruity results in such cases as when a positively regarded source of information makes a statement which the evaluating individual rates negatively. In such cases pressure toward congruity will result and attitude change toward either the source or the concept will be necessary. Here the magnitude of pressure toward congruity will be a function of the extent of the incongruity of the source and concept.

> It simply seems reasonable that a person's tendency
> to reject a message will be relatively much less for
> slightly incongruous relations than for grossly
> incongruous ones. (Osgood and Tannenbaum, 1955, p.48)

Assuming that attitude change usually involves the
less polarized object of judgment being pressured into
movement toward congruity with the more highly polarized
object of judgment, Osgood and Tannenbaum were able to
establish a table of expected attitude changes giving the
amount and direction of change for pairs of objects of
judgment composed of a source and a concept. Using Osgood's
semantic differential scale, 405 college students were
initially asked to rate six experimental and four "filler"
concepts on two occasions. A similar after test followed
a five-week interval during which the subjects studied
positive and negative statements from various sources on
topics related to the six experimental concepts. Attitude
change was computed by calculating differences in the rating
of these concepts between the before and after tests. The
observed changes were found to closely resemble the
theoretically expected changes in sign but not in absolute
value (i.e. were in the proper direction but not similar
in amount). Osgood and Tannenbaum thus found that when there
is an issue of congruity between concepts, the individual
will change his attitude towards these concepts by tending
to equalize the degree of polarization of the concepts
involved. If a highly positive evaluated concept is
associated, through an assertion, with a slightly negative
concept, the attitude toward both concepts will change as

the individual strives for congruity. The two concepts
will move toward each other with the attitude toward the
negatively rated concept showing the greatest amount of
change because it is less highly polarized.

> Attitude change toward an object of judgment is an
> inverse function of the intensity of original
> attitude toward that object. (Osgood and Tannenbaum,
> 1955, p.53)

This application of the principle of congruity to
the phenomenon of attitude change certainly enlarges the
body of knowledge relative to this principle. The fact
that other variables in addition to congruity, suscept-
ibility and resistance contribute to changes in attitude
is not denied by Osgood and Tannenbaum. The use of an
individual rating scale as a measure of attitude change
toward associated concepts does seem debatable especially
in the light of Osgood and Tannenbaum's statement that most
people tend to make their evaluations of objects of judgment
as simple as possible, tending to cluster their judgments
near the extreme poles on the semantic differential scale.
The present theorists do not give any explanation of the
motivational aspects of incongruity other than implying
that the perceived incongruity between the individual's
frame of reference and his evaluative attitudes automatic-
ally leads to a striving for congruity, a change of
attitudes. Perhaps it is a misconception but it would seem
plausible that an individual, under this theoretical frame-
work, could experience a change in values, a change in his

judgmental frame of reference, without experiencing a

synonymous change in attitude. If such is the case, mani-

pulating or attempting to predict attitude change would

only be superficial, not contributing any knowledge about

actual changes in the individual's evaluation system.

### (c) Bruner

In Brunerian theory input information is categor-

ized according to the correspondence of its content matter

with the criterial attributes of the relevant categories.

A category is attained when certain specific attributes

(criterial attributes) are found which will identify and

distinguish exemplars of that category from nonexemplars.

Bruner, Goodnow and Austin (1956) state:

> Any behavior involving the placement of objects or
> events on the basis of selected clues may be
> profitably conceived of as categorizing; whether
> perceptual or conceptual. (p.231)

Incongruity is employed by Bruner specifically in

connection with perceptual categorization and it arises

when the set or expectancy of the organism regarding

perception of stimuli is not confirmed. Such violations

of expectancy can occur as a result of

> an unexpected concatenation of events, a conspicuous
> mismatching or an unlikely pairing of cause and
> effect. (Bruner and Postman, 1949, p.208)

Incongruity, therefore, would inhibit the categorization

activities of the organism but once it had been resolved,

future categorization of similar perceptions would be

facilitated.

Bruner and Postman (14) investigated the types of responses available to the organism in an incongruous situation by tachistoscopically presenting a series of playing cards to 28 student subjects. Some of the cards were incongruous in that color and suit were reversed and it was found that the recognition threshold for these cards averaged as much as four times greater than for normal cards. The experimenters explained their result in terms which would be acceptable to congruity theory in general and not simply that dealing with the visual perception of stimuli. They postulated that some subjects refused to recognize the incongruity and perpetuated past expectations; that other subjects compromised between the expected and the observed attributes of the perceived stimuli; that for other subjects the perception was disrupted and they displayed bizarre reactions because their expectations had gone unfulfilled; and finally, that some subjects recognized the incongruity but because of a thwarting of expectations their reaction time in recognition was probably lengthened,

Bruner (1958) does note in another article that:

having seen incongruity finally, later instances are much more rapidly identified correctly. (p.91)

Thus it does appear that learning does take place through successive encounters with perceptual incongruity. Bruner

speaks about conceptual and perceptual categorization and therefore it could be assumed that he would agree to the existence of both conceptual and perceptual congruity as mentioned in Berlyne (1960). This distinction, however, seems rather suspect and is disregarded in this present investigation. Thus it would appear that the findings of Bruner and Postman (1949) would be applicable to the general theoretical framework involving the principle of congruity rather than a single aspect of it.

One other article, by Taguiri, Bruner and Blake (1958), introduces the concept of perceptual-affective congruency cognate to social interaction. This is defined to represent the extent to which an individual sees the feelings of others as corresponding to his feelings for them. In a small group study conducted by these experimenters, they found similar results to those recorded by Secord, and Backman (1961). Each group member had to indicate whom he liked best and least in the group and which individuals he felt liked him best and least. The study concluded that the subjects tended

> to perceive the feelings of others in accordance with their own feelings for them. Congruency occurs far in excess of chance. (p.112)

It appears, therefore, that the principle of congruity can be used to explain the feelings of acceptance or rejection experienced in group structures, at least in small face-to-

face groups. These findings anticipate further studies
on this topic reviewed later in this investigation.
Brunerian theory contributes to a knowledge of the
principle of congruity and does not seem to conflict with
other literature reviewed on this topic but it also does
not contribute to an understanding of the motivational
components of congruity or of the nature of a striving for,
or a tolerance of, incongruity.

(d) Berlyne

Berlyne (1960) dichotomizes perceptual incongruity
from conceptual incongruity but classifies both as aspects
of conceptual conflict. Most of his theoretical statements
regarding the latter would seem to border on theory
applicable to the principle of congruity. As fundamental
aspects of conceptual conflict, Berlyne includes: con-
flicting tendencies to believe and disbelieve the same
statement; inclinations to accept a number of mutually
exclusive beliefs (both of these tendencies could be con-
sidered as aspects of Rokeach's (1960) "belief congruence");
cognitive elements which are logically opposed to each
other (as in Festinger's (1957) "dissonance"); confusion
stemming from perceptual or conceptual ambiguity (which as
defined by Berlyne could be similar to Bruner's (1949)
"perceptual incongruity"); cognitive elements which cannot
be adequately categorized (also would seem related to
Bruner's consideration of conceptualization and incongruity);

and "conceptual incongruity", which arises when an individual finds that something he has formerly believed authentic and regular now has an exception.

Thus Berlyne's definition of conceptual conflict as involving "incompatibilities between symbolic responses" (p.283) would be recognized by many theorists as being synonymous with a definition of the principle of congruity. Berlyne (1960) emphasizes conflicts arising from

> the denotative content rather than the affective tone of beliefs and thoughts and also the relations between such conflicts and the pursuit of knowledge. (p.285)

As such, Berlyne must be contrasted to Osgood and Tannenbaum (1955) who stress the connotative meanings of objects of judgments. Berlyne also separates conceptual incongruity, involving symbolic response tendencies, from perceptual incongruity, encompassing expectations of perceived stimuli, as Bruner and Postman (1947) seemed to do. This distinction appears somewhat unpalatable especially if one regards perception as fundamentally a cognitive event, inherently involving, and involved in, the process of conceptualization. Nevertheless, Berlyne describes perceptual incongruity as arising when stimuli which formerly occasioned certain expectations on the part of the organism are now perceived in conjunction with stimuli which disappoint these expectations. This would involve the perception together of stimuli which the individual previously believed were

incompatible. This definition is similar to that given by Bruner and Postman (1947) and the supportive evidence given by Berlyne also bears this resemblance.

Berlyne (1957) used the tachistoscopic method of presenting 14 picture cards for 14 second intervals to 16 undergraduate students in order to study the independent variables relative to perceptual curiosity. Similar to Bruner and Postman (1947), Berlyne found significantly longer reaction times for incongruous picture which had bird and animal characteristics indiscriminably mixed. Berlyne concludes that this demonstrates the functional significance of the incongruity-conflict variable in both epistemic and perceptual curiosity, since he considers perceptual curiosity to be a forerunner of epistemic curiosity. One point is evident from such experiments using a tachistoscope: much depends upon the exposure interval used, for some studies have shown no effects of incongruity mainly as a result of using a different interval. Another experiment by Berlyne (1954a) on the same topic of curiosity but using a different procedure produced similar results. Various familiar, exotic and fictitious pictures of animals are presented to the subjects as well as informative communications on them. During the final sessions the subjects were given a questionnaire on the animals and then allowed to mark those questions about which they were curious and would like more information. Berlyne

found that questions involving concepts which seemed to be incompatible aroused more curiosity than questions involving applicable or compatible predicates.

Berlyne's main contribution to the body of knowledge underlying the principle of congruity is mainly in the area of motivation, something which most other theorists on this topic have neglected. Berlyne points out that incongruity and conceptual conflict in general promotes a state of arousal and he points out its advantages. Berlyne (1960) contends that:

> conflict among symbolic response tendencies ....
> provides the motivation for intrinsic epistemic
> behavior, and supplements extrinsic motivation
> when knowledge is sought for practical or social
> ends. (p.280)

The implications of congruity, as represented by Berlyne's "conceptual conflict", for knowledge seeking behavior give momentous support to the ability to tolerate incongruity.

Berlyne (1954b) touches on the basic reason why incongruity is regarded as unpleasant and arousal-inducing by most individuals. Here he is referring to the intervening variable of conflict in general in statements which would seem referable to congruity.

> Many writers have been showing that one of the most
> distressing plights for human beings is not to know
> or to understand a state of affairs particularly if
> it is important for their security or contrary to
> their expectations. One of society's most vital
> functions is to provide norms and frames of reference
> for the evaluation of new contingencies........But
> the principal drive behind it may well be the
> conflict-drive, produced by uncertainty, which, as
> many wartime phenomena showed, is often more antagon-
> izing that realistic anticipation of unpleasantness.
> (p.188)

Such thoughts reiterate Fromm (1941) who refers to the
motivating qualities of the basic fears of insecurity,
insignificance and powerlessness and portend of the
necessity of tolerance of incongruity.

(e)  Rokeach - and Harvey, Hunt and Schroder

Two of the most current and comprehensive
embodiments of cognitive theory, aspects of which are
collateral with the principle of congruity, had been re-
corded by Rokeach (1960) and Harvey, Hunt and Schroder
(1961). The theories advanced by these psychologists are
quite closely linked with those of Berlyne (1960).
Although no attempt will be made to give a complete survey
of the writings of these men, it is still felt that these
volumes contain the most fundamental explanation, at the
individual personality level, relevant to this present
investigation. Very little discrepancy was found between
the statements of these and the other theorists reviewed.

Rokeach (1960) is concerned with the structure of
belief-disbelief systems and discusses this structure in
relationship to the open and closedmindedness of people.
Harvey, Hunt and Schroder (1961), writing without knowledge
of Rokeach, deal with mediational processes facilitated by
the formation of concepts. They appear to take an approach
somewhat more basic to human functioning and thus they
stress the structural organization of conceptual systems,

something which would be the fundamental framework on which belief-disbelief systems are founded.

Rokeach signifies that the more open one's belief system is, then: the more should incoming information be evaluated independently on its own merits, the more should the individual be governed by internal self-actualizing forces and the more should he be able to resist externally imposed reinforcement. He also voices Fromm's (1947) ideology:

> To varying degrees, individuals may become disposed
> to accept or to form closed systems of thinking and
> believing in proportion to the degree to which they
> are made to feel alone, isolated and helpless in
> the world in which they live (Fromm, 1947) and thus
> anxious of what the future holds in store for them.
> (p.69)

In this present investigation, tolerance of incongruity and intolerance of incongruity would correspond to Rokeach's openmindedness and closedmindedness respectively.

Rokeach makes additional contributions to the theoretical bases of the principle of congruity in terms of his "principle of belief congruence". While not delving into the motivational aspects of his statement, Rokeach concludes that

> each person is somehow motivated to arrange the
> world of ideas, of people, and of authority in
> harmonious relations with each other. (p.395)

This arranging or organizing of the world takes place in line with the principle of belief congruence and thus provides an example of a particular aspect of what is

regarded in this investigation as striving for congruity.
Rokeach views this principle as fundamental in an
explanation of prejudice:

> From an individual standpoint, prejudice is conceived
> to arise from a conditioned avoidance of belief
> systems incongruent with one's own, and not from
> a general conditioning to hate outgroups as a
> class, this being a secondary development that
> arises as prejudice becomes institutionalized.
> (p.163)

Rokeach provides supportive evidence for his theory
and this, not his theory, seems rather suspect. He uses
variations of the "doodlebug problem" and arrives at
conclusions that the persons with relatively open systems
would take less time in problem solving, mainly because
they can integrate new beliefs more quickly, and would be
receptive to new systems. However, Rokeach has used his
Dogmatism Scale as the instrument for differentiating open
and closedmindedness and this scale, in the light of the
present investigation, seems to lack construct validity.
Much depends on Rokeach's definition of "dogmatism" and
this is not too evident from his writing. The character-
istics Rokeach outlines for the person of relatively open
belief systems are basic to the theory accepted in this
present investigation.

A distinction between Rokeach's belief-disbelief
systems and Harvey, Hunt and Schroder's conceptual
systems would be difficult to make and probably would run

the risk of misinterpreting the theorists' statements.

Harvey, Hunt and Schroder do seem to be dealing with more

fundamental cognitive structures. They support their

statements throughout with results from numerous apparent-

ly well designed experiments. To these theorists the most

important structural characteristic of conceptual systems

is the degree of concreteness or abstractness. Conceptual

systems progress toward greater abstractness.

> The more concrete, the more the structure is
> assumed to be restricted to, or dependent upon,
> the physical attributes of the activating
> stimulus. (p.3)

Like Rokeach, Harvey, Hunt and Schroder advance their

speculations on the actual nature of conceptual systems

but they go further and hypothesize about the essence of

various stages and levels of cognitive functioning through

which the human mind can progress on this continuous

dimension of concreteness-abstractness.

In describing the actual nature of conceptual

systems, four structural characteristics are discussed, one

of which is Rokeach's openness-closedness. In Harvey, Hunt

and Schroder, this systemic characteristic is described in

much the same way:

> receptivity of the system to external events or to
> varied interpretations of the situation. (p.75)
> Closedness......gives rise to the tendency to
> ward off potentially refuting stimuli. (p.82)

The other structural properties of conceptual systems

include clarity-ambiguity, compartmentalization-inter-
relatedness, and centrality-peripherality.

The actual stages and levels of cognitive function-
ing trace conceptual development from the basic stage of
absolutistic or concretistic concepts characterized by
maximum undifferentiation to the final stage of internal
and informationally based concepts characterized by maxi-
mum abstractness and involving the individual in an
interdependent relationship with the environment around
him. Progressive development through these stages implies
increasing abstractness. This final stage depicts many of
the personality characteristics which this present invest-
igation would regard as synonymous with maximum tolerance
of incongruity.

Harvey, Hunt and Schroder make many other pertinent
references to the principle of congruity. They reiterate
the statements of Festinger (1957) regarding post-decision
conflict:

> once a choice between two alternatives has been
> made, behavior is characterized by increased
> consistency and is accompanied by an increased
> sensitization and openness to information that
> is congruent with the alternative chosen. There
> is also an avoidance of or an increasing
> closedness to information relative to the
> rejected alternative. (p.165)

They also refer to another form of incongruity resolution.
When incongruity has arisen between a refuting event and

a conceptual system,the individual may strive to remove the
potentially refuting event or he may change the conceptual
system organization sufficiently to solve the incongruity.
One final aspect of the theory advanced by these psycho-
logists which is contingent upon the principle of congruity
involves their consideration of threat. They postulate
that tolerance of stress or threat should increase as
progress is made toward more abstract levels of cognitive
functioning. This would also appear to be fundamentally
characteristic of tolerance of incongruity. As an individ-
ual becomes more capable of tolerating the anxiety or
arousal associated with incongruity, the less likely it will
probably be that he will resort to defensive resolutions of
anxiety. Harvey, Hunt and Schroder point out the necessity
of the ability to tolerate refutation of conceptual systems
for this "provides the basis for progressive development
to occur". (p.319) A resolution of anxiety that:

> produces greater closedness is adaptive within
> the range of a particular system but is maladjusted
> from the broader viewpoint of progressive develop-
> ment. (p.321)

2. Principle of Congruity Related to Self Theory

The main theoretical statements basic to the frame-
work upon which this investigation is based have been
reviewed but there are yet other areas which make
significant contributions. Overlooking the fact that some
theorists would like to dispense with the term "self
concept", one can readily observe that many self theorists
do make reference to the principle of congruity. Much of
the literature in this area lacks the support of scien-
tific verification, thus much of the theory is dependent
upon the credence one invests in the various aspects of
self.

(a) Lecky

Lecky's (1945) "self consistency" is recognized
here as referring to intrapersonal congruity. Lecky finds
it difficult to accept the inevitable conclusion of the
behaviorist that human behavior is only predictable to the
degree that the nature of the specific situation is known.

> The main scientific issue at stake in the contraversy
> is the predictability of behavior. Our position is
> that predictability is a function of stability and
> therefore of the basic need for consistent self-
> organization. (p.19)

Stability of behavior, therefore, in Lecky's terminology,
is a function of inner consistency, consistency of values,
ideas and experiences. This approach is subject to the

criticism of theorists like Secord and Backman (1961)
who want to stress a striving for congruity in inter-
personal relationships as the fundamental explanation of
personality stability and change. Secord and Backman
would take exception to the ease with which Lecky discards
the social interaction aspects of the principle of con-
gruity. The hypothesis that an individual cannot attain
self-consistency without solving his social interaction
problems is evaded by Lecky, who surmises that:

> we do not aim at consistency with the demands of
> society, but only at self-consistency. In other
> words, if the personal problem is solved and
> unity of action is achieved, the social problem
> disappears. (p.99)

Lecky, like Berlyne (1960) and Festinger (1957) recognizes
the motivational characteristics of inconsistency or
incongruity. Anything that is inconsistent is a distraction
which conflicts with ongoing activity and must therefore be
assimilated or mastered by the individual. The individual
learns to handle this distraction and to alleviate the
concomitant tension, thus experiencing pleasure and facil-
itating maintenance of self-unity.

If self is defined as the conceptual framework of
the individual, as Harvey, Hunt and Schroder (1961) do
define it, then Lecky's representations are not too dis-
crepant from those of theorists who followed him by more
than a decade, including: Bruner (1956), Osgood (1955),

Rokeach (1960), Harvey, Hunt and Schroder (1961). Lecky

seems to use the terms "personality" and "self" inter-

changeably, defining only the former in terms similar to

those used by Harvey, Hunt and Schroder in defining

"conceptual framework". Lecky (1945) states that person-

ality is:

> a unified scheme of experience, an organization of
> values that are consistent with one another. (p.90)

Lecky provides no experimental validation for his

statements but Anderson (1959) attempted to investigate one

of the theorist's postulates that

> any idea entering the system which is inconsistent
> with the individual's conception of himself cannot
> be assimilated, but does give rise to an inconsist-
> ency which must be removed as promptly as possible.
> (Lecky, 1945, p.145)

Anderson attempted to find inconsistencies among the self-

concept, the ego-ideal and the felt attitudes of the group

toward self of 105 grade eight students. No significant

fluctuations were found but he concluded that there were

many inconsistencies among the three functions investigated.

These findings do seem to postulate that there are ages,

such as during childhood, when inconsistency rather than

self-consistency is the rule, something which Lecky did

not mention.

(b) Rogers

Rogers (1959) refers to the self as a differentiated

portion of the individual's phenomenal field, including those

perceptions and values which the individual refers to as "I" or "me". He speaks of the self as striving for consistency and the organism in turn behaving in ways which are consistent with the self. Therefore, in Rogerian theory, incongruity is the discrepancy between perceived self and the actual experience of the organism. Any discrepancy is perceived as a threat and therefore will be denied assimilation into the self structure, or will be distorted into being more acceptable or else the individual will change the self-structure to assimilate this discrepant experience. Once again there is a distinct resemblance to Harvey, Hunt and Schroder (1961) who regard the conceptual framework as being the self structure. In Rogerian theory, continued incongruity will leave the individual vulnerable to threat, anxiety and disorganization. Through client-centered psychotherapy it is anticipated that congruity of self and experience will be attained, thus experiences will be accurately symbolized and included in the self-concept, less defensive reactions will be used, and congruity will exist between the self concept and the ideal-self.

The possibility that some persons do not find incongruity disruptive is disregarded by Rogers and probably would be refuted by the claim that such individuals are using defense mechanisms such as distortion or denial.

It does seem plausible that some persons do find congruity

disruptive! Haigh (1949), writing within Rogerian

theoretical framework, postulates that:

> threat exists in the form of incongruence between
> one particular value, concept, or experience and
> another particular value, concept, or experience.
> (p.182)

This statement overlooks the speculation that incompatible

cognitive elements can still exist within the individual's

mind without constituting an emotional disruption, as

supported by Osgood and Tannenbaum (1955). This would

also deny Berlyne's (1960) allegation that the conceptual

conflict arising from such "incongruence" is the necessary

forerunner of perceptual and epistemic curiosity.

Chodorkoff (1954) studied the role of misinterpret-

ation of threatening stimuli in protection of stability

of the self and hypothesized that:

> the adequacy of personal adjustment is considered
> inversely related to the degree to which experiences
> are denied awareness. (p.508)

He gained an estimate of perceptual defense for each of his

30 male subjects from their tachistoscopic reaction times

to neutral and threatening words. He correlated this

measure of defensiveness with each subject's Q sort test

and the Q sort analysis make for each subject by three

experienced judges who rated each subject on eleven

adjustment scales. Chodorkoff's hypotheses were confirmed:

better adjusted subjects showed less perceptual defense

and higher agreement between their self descriptions and descriptions by others. The results do support Rogers' statements regarding attempts to maintain congruity by using defense mechanisms, but they also point out the inadequacy of an individual's self-report as an objective evaluation of self, particularly when compared to reports from outside judges. Chodorkoff also points out that perceptual defense must be considered as an individual phenomenon. Rogers seems to regard it as universally characteristic of all non-client-centered therapy patients.

Haigh (1949), hypothesizing that the frequency of defense behavior would decline through the course of client-centered behavior, used no control group, an undocumented measurement instrument, and found an increase in defensiveness in 3 out of 10 experimental cases. Thus his conclusions that the results supported his hypothesis seem unjustified, especially when it appears that he measured defensiveness displayed in a counseling situation and not deep-seated defensiveness. It would appear doubtful that such experiments could be used to analyze the important concepts and values which are easily threatened and therefore staunchly defended in attempts to maintain congruity. No control group was used by Nunnally (1955) as he attempted to study the therapeutic changes in the "case of Miss Sun" by factor analyzing pre- and post-Q sort tests. Changes

in the self-concept were noticed and the conclusions gave

support to Rogerian theory.  Nunnally concluded that:

> For Miss Sun there is a movement toward increasing
> congruence among the owned self-assessments after
> therapy. (p.90)

One aspect of congruity which has been examined in

self theory is the relationship between various constructs

of self, such as between the self concept and the ideal

self.  Bills, Vance and McLean (1951) used their own

measurement instrument for which they review background data

regarding reliability, validity and norms, and from which

they reportedly gain estimates of the self concept, self

acceptance and ideal self.  These experimenters postulated

that personal maladjustment

> exists when the discrepancy between the concept of
> ideal self and the concept of self is great enough
> to cause unhappiness. (p.257)

Individual differences in tolerance of a discrepancy or an

incongruity between self concept and ideal self are ignored;

it is merely assumed that a large discrepancy score is

indicative of maladjustment which they estimate from the

self acceptance score.  The results of this experiment

showed a highly significant negative correlation (-.77)

between self acceptance scores and discrepancy scores.

Similar results were recorded by Hanlon, Hofstaetter

and O'Connor (1954) who gained measures of self concept and

ideal self from their subjects' Q sort tests and estimates

of personal adjustment from the California Test of Personality. They accepted the Pearson correlation coefficient compiled on each subject's Q sort tests as representative of "self-ideal congruence". Their results showed a significant correlation of .70 between self-ideal congruence and total adjustment for 78 male high school juniors. They also report that there was a tendency toward congruence of the self concept and ideal self and yet the possibility that a subject could score equally low on self concept and ideal self but attain a high adjustment score and thus support their hypothesis is disregarded even though it is inconsistent with their theoretical framework. They also do not report how they quantified the data from the Q sort techniques. Just how significant such self reports of the self concept or the ideal self are is quite debatable. It seems quite likely that they do not represent fundamental conceptual systems such as those referred to by Harvey, Hunt and Schroder (1961). Perkins (1958) using the Q sort method with 251 fourth and sixth grade children, found that

> self concepts and ideal selves of children become
> increasingly and significantly congruent through
> time. (p.230)

Perkins is assuming that subjects of these age groups have sufficient insight into their self patterns but he does

mention a seemingly incompatible fact that sixth graders
had higher test-retest reliability than fourth graders.
Reliable, objective evaluation of the various concepts of
self seem especially difficult to attain for this age
group.

Wylie (1961) criticizes the Q sort technique as
used in such studies as the aforementioned. She states
that often the continuum of statements is too ambiguous
making it difficult for the subject to know if he should
take into consideration situations when one of these
characteristics would be appropriate or inappropriate. In
the interpretation of the subject's ratings, it is also
difficult to know what psychological method of measurement
the individual used in making certain placements along a
continuum. Wylie also points out a statistical danger which
accrues in studies, such as Brownfain (1952), which use two
part indices to attain discrepancy scores. She mentions
that these methods contribute too much variance to the
dual index and probably do not have as much construct
validity as if a simpler score were used. Brownfain
measured discrepancies between self as "positively" and
"negatively" conceived, regarded this as a measure of
stability and correlated it with adjustment scores from the
Guilford-Martin Inventory of Factors and group evaluation
of each subject on ten variables. Of 62 male university
students living together in cooperative housing, it was

found that those with the more stable self-concepts were better adjusted than those with less stable self-concepts. Brownfain attempted to correct for rigid or stereotyped attitudes toward self and this appears to be an acceptable, but often neglected, practice in such studies. Thus the concensus of evidence from studies related to congruity of self seems to indicate that congruity, consistency, stability of the various aspects of the total framework correlates positively with personal adjustment. This does not preclude the possibility that these subjects studied could learn to tolerate incongruity in the conceptual framework constituting the self and still be as well, if not better, adjusted.

(c) Cooley

Sociologists have made pertinent contributions to self theory by emphasizing those aspects which are functions of social interaction processes. Cooley (1956) speaks of the "reflected or looking glass self":

Each to each a looking glass
Reflects the other that doth pass. (p.184)

The individual imagines how the person with whom he is interacting perceives and evaluates his appearance, manners, aims, deeds or character. Depending upon his respect for the character of that other person, the individual reacts in accordance with some sort of self feeling such as pride

or mortification. The development of this "imaginative self" proceeds in the child as he finds he is impressed by some persons and thus desires to please them while other persons who seem indifferent or repugnant elicit the opposite response.

Congruity would apply here to the state toward which the individual strives in which consistency is obtained between his appearance and the reflection of it by persons in whom he is interested. If there is incongruity between what the individual imagines people are thinking in reference to himself and what he is normally accustomed to imagining, this will be reflected in some peculiarity of self feeling and the individual may experience such feelings as shame or disgrace. The resultant behavior could be characterized by withdrawal activity or by contending with the incongruent elements, thus trying to control or transform them. Cooley points out possible sex differences in this striving for congruity (i.e. tolerance of incongruity):

> the thought of woman needs to fix itself upon some person in whose mind she can find a stable and compelling image of herself by which to live. Men, built more for aggression, have, relatively, a greater power of standing alone. (p.203)

Green (1956) believes Cooley's concept is only applicable to early childhood. He states that:

> With advancing age, one tends to seek out those others whose expectations are more or less

compatible with one's present personality structure.
The concept of the "looking-glass"self, therefore,
is an oversimplification. (p.118)

In later years of development, Cooley's concept would be

unacceptable because the self is no longer plastic and the

individual may resist the evaluation of some persons with

whom he interacts because it is impossible for him to

readjust his overt behavior to meet the changed expect-

ations which are causing conflict. Green stresses the

significance of the social interaction process as a

dynamic factor in human behavior and speaks of the indiv-

idual as consciously striving to interact with persons who

will be congruent with his concept of self.

(d) Mead

Mead (1934), using more explicit terminology than

Cooley (1946) or Green (1956), defines the self as that:

which can be an object to itself, essentially is
a social structure, and it arises in social
experience. It is impossible to conceive of a
self arising outside of social experience. (p.140)

Throughout his writing, Mead stresses the significant role

in individual behavior of the "generalized other" which is

the organized society or the social group and which

functions to give the individual unity of self. Thus Mead

is emphasizing the social influence implications of the

social group rather than that of specific individuals as

implied by Cooley.

Mead introduces the concept of diverse selves to the framework established by Cooley. In Mead's theoretical framework, the individual can have selves which together constitute the complete self and which can become dis-associated if an event leads to emotional upheaval.

> In other words, the various elementary selves
> which constitute, or are organized into, a
> complete self are the various aspects of the
> structure of that complete self answering to
> the various aspects of the structure of the
> social process as a whole. (p.144)

Congruity in Mead's theory would represent consistency of the "various elementary selves" in the complete self. It would also be indicative of the acceptance by the individual of the social attitude of the generalized other.

The fundamental self theory propounded by Cooley and Mead is the basis for research on the social interaction problem studied by Secord and Backman (1961b). The research conducted by Taguiri, Bruner, and Blake (1956) on small interaction groups found that the subjects "tended to perceive the feelings of others in accordance with their own feelings for them". (p.112) would provide relative experimental support for these sociological theories. Anderson (1959) examined Mead's concepts of "generalized" or "significant others". He hypothesized that if Mead's theory was valid, the extent and direction of inconsistency of the self concept between various testing occasions should be directly related to the extent and direction of the

subject's interpretation of group attitudes toward him.

In an experiment already considered in connection with

Lecky (1945), Anderson found no significant correlations

between self-concept and group attitudes toward self. He

concluded that self-concept, ego ideal, and felt group

attitudes may be involved in more complicated interactions

than Mead had expressed. Anderson also felt that the

results implied the presence of many selves and therefore

much inconsistency in the self concept, especially in

subjects of an age group like these eighth graders. This

inconsistency could be a function of an inadequate

measurement instrument used for this age group.

(e) La Piere

La Piere (1949) seeks to distinguish between the

"private self" and the social self. The former is that

which the individual knows, however vaguely, but which

others can know only from inference based on the particu-

lar individual's overt behavior. He uses the term "private"

because:

there are no consistent outward manifestations of
the covert behavior. (p.162)

This is a rational aspect of the conceptual framework of

the self which the other sociological theorists neglected

to mention or denied existence. Stability of the private

self, according to La Piere, must be cultivated in children

through the development of a feeling of security

> which will protect the private self from becoming
> demoralized in the normal hurly-burly of life.
> (p.162)

He thus seems to be authorizing a lifelong striving for
congruity between the private self and the external world.
If such is the case, La Piere is labouring under the
questionable assumption that this is a desirable quest,
one that could lead to rigidity of behavior, stereotypy
of beliefs, knowledges and attitudes, and prejudiced,
emotionally loaded ideas which are closed to refutation.
It could in turn be postulated that failure to provide
the child with an adequate and continuous parade of ident-
ification models as well as excess security, would
facilitate him to develop more openmindedness, independence,
creative and critical thought and release from the
perpetual need for congruity.

The light which the sociological theorists shed
on social interaction process and its implications for the
principle of congruity is not to be denied. Social inter-
action would appear to be one end of the congruity contin-
uum contrasted with but not disconnected from the other
pole of individual ideas and beliefs. The role of the
principle of congruity for the sociologist is conformity
to the demands of the reference group. La Piere summar-
izes this quite adequately:

> Operating through attributes of personality,
> social controls induce the individual to repress
> deviant attributes which should not be expressed
> in situational circumstances or to behave overtly
> in ways which are situationally required but do
> not stem directly from an established attribute
> of his personality. (p.266)

The applicability of the principle of congruity in sociological theory seems rather obvious. It also seems apparent that any attempt at molding a comprehensive theoretical framework around this principle for the purpose of postulating support for a tolerance of incongruity must not deny the role of social interaction processes. It is the purpose of this review to demonstrate that no adequate synthesis of a body of knowledge relative to the principle of congruity can be attained without a two fold consideration of both intra-personal and inter-personal factors.

3. Principle of Congruity Related to Interpersonal
   Relationships

The division of the literature into a third category
is perhaps erroneous but the sociological theory just
reviewed seemed to provide a necessary vinculum for a
discussion of congruity in interpersonal relationships.
Literature reviewed under this topic may be considered
along with studies reviewed under the previous topic, as a
specific extension of the first category considered:
congruity of cognitive elements.

(a) Secord and Backman

An unpublished research summary by Secord and Backman
(1961b) elucidated much of their original theory and des-
cribed their attempts to experimentally verify some of their
basic postulates expressed in an earlier theoretical article
(1961a). The principle of congruity here applies to the
interpersonal matrix, a concept introduced to explain
personality and behavioral stability and change. This
matrix is a composite of three interacting components: an
aspect of the individual's self concept, related interpret-
ations of this individual's own behavior and his perception
of the relevant aspects of the behavior of the individual
with whom he is interacting. The self concept is defined
in terms similar to Cooley's (1956) "looking-glass self"

and Mead's (1934) self as partially determined by the

attitudes of generalized or significant others.

In this interpersonal theory, the individual, by

manipulating, controlling or distorting one or two of the

components in order to attain consistency within the

matrix,

> strives to achieve congruency among the components
> of the matrix (1961a, p.22). Individuals shape
> the interaction process so as to maximize congruency
> among the three components of the interpersonal
> matrix. (1961b, p.1)

Congruent interpersonal relationships are usually repeated

and are especially sustained by the occurrence of mutual

affect between the two interacting persons. (i.e. the

more value the individual places on the behavior of the

other person, the more the matrix will be perpetuated.)

Incongruous matrices produce a striving toward a recurrence

of congruity and because of the individual's preference for

congruent matrices, he will gradually build up a repertoire

of them.

No statements are made by Secord and Backman

regarding individual differences in striving for congruity,

and in fact it seems to be assumed that this propensity is

an innate, universal drive. Any ability of the individual

to cognitively control congruity striving or to tolerate

incongruity is overlooked. The impression could be

received that the individual ventures out seeking to

manipulate individuals to gain congruity for himself.

However, the accent placed by these theorists on the study

of interpersonal relationships to facilitate comprehension

and prediction of individual behavior is extremely signif-

icant and perhaps signals a change of interest for

conventional personality psychologists.

Because of the changing nature of interpersonal

relations due to changes in the socialization process,

fortuitous circumstances or the person with whom the indiv-

idual has been interacting having to change in order to

establish congruity for himself, congruity is continually

threatened. Adjustments necessitated by such changes may

be accomplished by the formation of a new matrix which will

include at least one new component or the individual may

simply manipulate the existing matrix. Cognitive dis-

tortion of one or more of the components of the matrix is

sorely neglected by Secord and Backman. It would seem

that many individuals distort reality and become ego-involved

with their distortion, thus making it very resistant to

change. Changes in the self concept or distortion in the

face of incongruity also are not considered, even though

the self concept is given a supreme role in the maintenance

of stability in the interpersonal matrix. The theorists

divide the self concept into many parts, each relevant to

a particular matrix but nothing is mentioned about congruity

among these various selves in the total self concept as

referred to by Mead (1934).

The only portion of the theory which Secord and
Backman have reported as having been subjected to exper-
imental proof involves the forms of resolution of incon-
gruity.  In the face of pressures which induce incongruity
and therefore demand change, the individual, apparently at
all times in complete control of the crisis, can manipu-
late the matrix.  He may selectively choose to interact
with persons whose behavior will necessitate only minimum
changes in existing congruent relationships, he may
selectively evaluate persons in the environment to maxi-
mize congruity, or he may misperceive the behavior of
significant others in order to gain greater congruity.
Although other methods of resolution are mentioned (1961a),
these are the bases of their experiment (1961b) in which
they hypothesize that congruity in interpersonal relations
produces liking while incongruity produces disliking.
Using a real-life situation in order to facilitate the
possibility of generalizing the results to everyday social
interaction processes, the experimenters administered to
31 girls living in a sorority house, 6 checklists and
rating forms so structured that the artifacts usually
incurred from the use of such instruments would be reduced.
Estimates were obtained for:  self concept, reflected self,
which of Cattell's 16 personality traits each subject felt
were socially desirable, which five of these each subject

felt was representative of each other subject, rankings of
each subject by his peers in reference to most liked and
least liked persons and in reference to those who inter-
acted the most and least. The results supported the hypo-
thesis based on the above-mentioned three forms of resolving
incongruity. Even though they used very subjective
attitude measurements and experienced difficulty controlling
the influence of social desirability, which has the effect
of producing greater congruency for friends than for dis-
liked persons, Secord and Backman seem to feel that this
indicates that their congruity theory is acceptable.

Secord and Backman do stipulate that relevant
matrices can be interrelated thus providing mutual support
but they have little to say about congruity between matrices.
It would seem specious that matrices could be structured
together to form conceptual systems such as referred to
by Harvey, Hunt and Schroder (1961). This would be
expediated if Secord and Backman defined the self concept
more in terms of a conceptual system, a system of values
or codes. In such terms individual matrices and systems
of matrices would be categorized in respect to that which
is meaningful to and valued by the individual. An explan-
ation of behavioral and personality stability would have
to go beyond the single matrix and even beyond groups of
related supportive matrices. Secord and Backman, like

most of the theorists reviewed here, do not expound the

motivational features of incongruity. No explanation is

given why individuals in their interpersonal relations

desire the congruous states attained through conformity to

group wishes such as a need for the security of social

identity and the warmth from a sense of belonging. Person-

ality theory seems incomplete and thus inadequate if the

motivational forces underlying behavior are not considered.

Secord and Backman (1961a) do point out, however, that

theirs is not meant to replace other theories of personality.

> The differences in emphasis between the present and
> the previous approaches to behavioral stability is
> that the individual strives to maintain inter-
> personal relations characterized by congruent
> matrices, rather than to maintain a self, habits or
> traits. (p.29)

The interpersonal approach to personality and behavior is

meant to supplement those theories which stress the role

of intrapersonal mechanisms or cultural and normative

forces. The integration of these approaches is highly

desirable but further research is imperative.

(b) Heider

Heider (1946) uses the configuration or unit

relationship of person-person, person-nonperson, two persons-

nonperson, or three persons as the fundamental concept in

behavioral dynamics. He speaks of "symmetrical harmony"

of these relationships, which occurs when the entities

making up the configuration have a two way either positive
or negative attitude toward each other. If symmetrical
harmony exists a "balanced configuration" exists. The
entities which can be part of the configuration include:
persons, situations, events, ideas or things. Heider
concludes that:

> a balanced state exists if all parts of a unit
> have the same dynamic character (i.e. if all are
> positive or all are negative) and if the entities
> with different dynamic character are segregated
> from each other. If no balanced state exists,
> then forces toward this state will arise. Either
> the dynamic character will change, or the unit
> relations will be changed through action or
> through cognitive reorganization. If a change is
> not possible, the state of imbalance will produce
> tension. (p.108)

Within the framework of this present investigation, Heider's
"balanced state" would be synonymous with a state of con-
gruity. The statement that "entities with different dynamic
character are segregated from each other" in some cases of
balanced states would also be acceptable, even though
Festinger (1957), Rogers (1959) and Secord and Backman
(1961) would seemingly disagree when he infers that such
entities would immediately result in dissonance. Heider's
final statement that tension results only when change is
not possible is objectionable. In the present theoretical
framework, imbalance for most individuals results in
immediate tension and this is the motivating force in
initial change. If no change is possible, excessive
tension would probably occur; this could be called extreme
frustration.

Heider (1958) points out two forms of general resolution which can occur to effect changes in imbalanced relations. In terms which bear a marked resemblance to Osgood and Tannenbaum (1955), Heider depicts a situation of imbalance as resulting when a "positive" person (who is liked by the subject) performs a "negative" action (which the subject finds disagreeable). Osgood and Tannenbaum state that this is resolved by a change in value system and evaluative attitudes toward the concepts involved. Heider (1958) states that:

> The situation can be made harmonious either by a change in the sentiment relations or in the unit relations. (p.207)

Harvey, Hunt and Schroder (1961) call Heider's changes in sentiment relations "behavioral resolutions" and changes in unit relations are referred to as an "interpretative maneuver" or "neutralization". A change in unit relations in the situation of imbalance depicted by Heider could involve the subject beginning to feel that the positive person is not really responsible for the negative action. Thus the negative action cannot be attributed to the positive person and the unit between these two is destroyed to preserve the unit between the subject and the positive person.

Cartwright and Harary (1956) followed up Heider's initial theoretical presentation, trying to translate it

into more respectable terms and to accurately diagram possible relationships within the configuration by using S-graph theory involving the concepts of point and line indicative of relationships.

> S-graph theory permits the scaling of structures
> with respect to the "amount" of balance possessed
> by imbalanced S-graphs. Accordingly, the degree
> of balance of an S-graph is defined as the ratio
> of the number of positive cycles to the total
> number of cycles. (p.242)

These theorists, in a rather involved dissertation, do seem to validate Heider's basic ideas and agree that this "tendency toward balance" is a significant determinant of cognitive organization and probably of interpersonal relations. They make an insightful addition to Heider's framework when they point out that many relations are unsymmetrical and imbalanced but are still maintained for different reasons. An example would be the person who continues to like another person even though the feelings are not reciprocated. They also believe that there are different degrees of balanced and imbalanced states and thus they set up scales of balance to measure these states, hoping to allay the misconception that relations are of the "all-or-none" variety. Cartwright and Harary also want to extend the boundaries of application of this theory from Heider's configurations involving a maximum of three entities as experienced by the single individual, to include group processes and social systems.

Morrissette (1958), using 600 undergraduate students and

pencil-and-paper social situations, attempted to ascertain

the implications of Cartwright and Harary's S-graph theory

regarding differences in degree of balance. His hypotheses

were that the magnitude of forces toward balance and thus

the magnitude of tension in the system were both inversely

related to the degree of balance of that system. In

fictitious social situations, the subject interacted with

two or three other persons in various unit relations;

sometimes the attitudes of persons in these units were

given by the examiner and where they were not stated, the

subject had to predict what he thought they would be.

> The theory of balance holds that the subject will
> predict relations which will maximize the degree
> of balance of the system. (p.242)

A questionnaire which was designed to measure the tension

the subject would experience was given at the end of each

problem situation. It would seem questionable whether this

instrument possessed construct validity, however Morrissette

does report that the results supported the hypotheses for

situations which involved positive relations but not

negative relations which he felt he had difficulty inducing.

Burdick and Burnes (1958) attempted to measure the

actual "strain toward symmetry" (balance or congruity)

postulated in the above theories by trying to create

balanced and imbalanced systems for their 24 subjects by

disagreeing with some and agreeing with others during discussions on two contraversial topics. A concurrent measure of skin resistance was taken and it was assumed that agreement conditions would result in fewer and smaller G.S.R. deflections than conditions of disagreement. The basic hypothesis was that if the experimenter was a positively valued other, agreement with him would constitute a balanced state and evidence of fewer and smaller G.S.R. deflections would be attained in contrast to the disagreement - imbalanced conditions. The applicability of a parametric test for the attained results was disputable; therefore the experimenters could only conclude that disagreement with a positively valued other is a noxious stimulus.

This finding of Burdick and Burnes (1958) is quite basic to the theoretical framework of this present investigation for it involves one of the most potent sources of incongruity. The fact that this is a learned response is supported by Burdick and Burnes (1958) as they generalize beyond the scope of their results but still provide a suitable conclusion to studies related to the principle of congruity. They state

> that during the socialization period the individual
> learns that agreement with positively valent
> 'others' is instrumental to the obtaining of
> positively reinforcing stimuli. (p.368)

## D. Summary

An attempt has been made to review various theoretical papers and research studies in the fields of psychology and sociology which make relevant contributions to an understanding of the principle of congruity and to give a continuous integration of the resultant theory. With full knowledge of the precarious position evolved from attempts at oversynthesization of seemingly divergent theoretical statements, the writer still feels that the literature reviewed can constitute a unified approach to the principle of congruity. The theoretical framework established by Festinger (1957), Osgood and Tannenbaum (1955), Berlyne (1960), Rokeach (1960) and Harvey, Hunt and Schroder (1961) provides the most adequate fundamental structure for the principle of congruity as well as the most basic formulations on which this investigation is founded.

It is felt that the principle of congruity constitutes a significant factor in the study of the dynamics of human behavior. The cognitive theories on which it is based involve intervening variables and mediational processes which have not been unerringly supported through experimental procedures. The literature has given full support to the existence of congruent states, those toward which incongruent individuals strive. Most of the reviewed

references referred to the fact that the existence of incongruity usually produces behavior aimed at its reduction, but few explained the motivational dynamics of this phenomenon. Whether the striving toward congruous states is autochthonous and universal or whether it is learned and dependent upon individual differences was never stated.

Most of the approaches, except Berlyne (1960) and Harvey, Hunt and Schroder (1961), considered the noxious aspects of incongruity, apparently evaluating congruous states as valued objectives. Very little was mentioned about individual differences in tolerance of incongruity or that this tolerance could be profitable for the incongruent individual. Many of the articles seemed to regard the process of striving for congruity as a natural outcome of the existence of incongruity; a process initiated by fortuitous circumstances which disappoint the individual's expectations.

The experimental studies reviewed as a group lack application of rigid scientific principles. Few involved random or representative sampling procedures, since most of them were restricted to college volunteers and even these samples were usually very inadequately described. Control groups where applicable were the exception and not the rule, and when they were used no statements concerning

the method of assignment to the various groups were given.
In experiments involving various therapeutic practices,
the treatments apparently were infrequently assigned at
random to the groups. Frequently the actual experimental
procedure was inadequately described, thus making it high-
ly improbable that an independent investigator could
replicate the experiment. The 5% and 1% levels of signif-
icance were acceptable in significance tests in nearly all
the experiments but this seldom was specified before the
actual data was analyzed. A dirth of evidence regarding
reliability and validity of the criterion measuring
instruments was also repeatedly observed. Finally, it
was also obvious that the experimental conclusions were
continually inconsistent with the obtained results since
they were replete with generalizations which were not con-
fined to the population from which the experimental sample
was drawn.

# CHAPTER IV
## POSTULATES AND HYPOTHESES

### A. Postulates

1. Incongruous states result when the expectations of the individual regarding the nature of certain cognitive elements are disappointed by the advent of other incompatible cognitive elements with which they are paired.

2. In Western cultures, incongruity intolerance is more prevalent than incongruity tolerance.

3. In Western cultures, the prevalent intolerance of incongruity is due to a learned aversion toward anxiety states which many persons associate with incongruity, including: loneliness, insecurity, powerlessness, uncertainty and separation.

4. In Western cultures, the ideology of congruity, involving conformity, belonging, imitation, security, has been proselytized as a desirable objective of human behavior. Incongruity intolerance is regarded as a positively valued behavioral trait.

5. There are individual differences in ability to tolerate incongruity, however, most individuals in Western cultures habitually seek congruous states, desiring to avoid incongruity as easily and as quickly as possible.

6. Incongruity is a motivating state.

    (a) Incongruous stimuli induce arousal which the individual seeks to alleviate by either cortical control or motor activity.

    (b) The resultant behavior aims at the final goal of resolution of the incongruity, permitting the individual to return to a congruous state.

    (c) For most individuals, past experience with incongruous states has been unpleasurable because of the abnormal increase in arousal concomitant with these states.

    (d) The individual anticipating the arousal potential inherent in incongruous states may resort to avoidance responses to escape the occurrence of these states.

    (e) The actual decrease in the level of arousal resulting from resolution of the incongruity is pleasurable, thus the resolution response is reinforced.

    (f) The attempts at resolution of incongruity can only be successful if the individual gains support from the physical or social environment.

7. Both tolerance and intolerance of incongruity are learned personality traits and as such can be changed.

8. There are significant differences in incongruity intolerance thresholds.

(a)  Most individuals are intolerant of incongruity.

(b)  Some individuals purposely seek incongruous states, perhaps desiring the associated arousal induction for the sake of the anticipated pleasure subsequent to arousal reduction, or perhaps finding congruent states are themselves disruptive.

(c)  Some individuals (e.g. consistent rebels) seek incongruity with the expectation of encouraging others to conform to them.

(d)  Some individuals, perhaps realizing the intrinsic values associated with incongruity tolerance, seek incongruous states.  They could even find the specific act of tolerating incongruity is pleasurable in itself.

9.  If positive incentives are recognized, individuals can learn to be tolerant of incongruity.

(a)  There will still be an induction of arousal when incongruity is encountered but defensive reactions will not be immediately evoked nor necessary at all.

(b)  Individuals, recognizing the advantages of tolerating the incongruity for a period of time, will be able to control and channel the arousal.  This ability could develop to a level where control does

not need to be consciously exerted and individuals
can live with the arousal and not feel tense or
restricted. The ultimate end could involve
individuals finding incongruous states quite
pleasurable.

(c) Positive incentives for incongruity tolerance could
include: realization of a positive type of freedom
- "freedom to" - including more inner-directedness
(self control) and greater pursuit of personal
interests; more openmindedness to novel stimuli
and potentially refuting stimuli; facilitation of
progression toward more abstract stages of con-
ceptual functioning; more creativeness and
spontaneity; more original and critical thought;
and increased epistemic behavior.

## B. Hypotheses

1. Provision of a learning situation in which the positive
incentives of incongruity tolerance are expounded will
result in different personality changes as measured by
various personality tests.

2. These different personality changes will correspond to
those predictable from the theoretical framework
postulated here.

## CHAPTER V
## EXPERIMENTAL DESIGN

### A. Subjects

The forty-one subjects [1] for the experiment were volunteers from nine tutorial classes in an introductory course in Educational Psychology. The writer instructed in two of these tutorials. These subjects were randomly assigned to one experimental and two control groups. The sample consisted of sixteen male and twenty-five female subjects ranging in age from 17.8 to 34.1. The mean age was 20.6 with a standard deviation of 3.6. The subjects were all enrolled in B.Ed. programs, thirteen of them in the elementary route and twenty-eight in the secondary route. The mean grade twelve average for the entire sample was 68.3 with a standard deviation of 2.9. The individual group means were 69.5, 66.6 and 68.8 for Groups A, B and C respectively. The groups were designated by these letters throughout the experiment.

### B. Treatment

All forty-one subjects met together during the first session and completed a questionnaire, captioned "Auto-biographical Background Information", as well as the three personality tests used in the experiment. At this time

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[1] During the course of the experiment, one subject withdrew from University and thus the groups were of unequal size. Group A and Group C contained fourteen and Group B thirteen subjects.

also, they were informed of the groups to which they had
been randomly assigned. Groups A and B met once a week
for the next seven weeks in one hour informal discussion
groups. Group C attended no sessions but returned on
the ninth week for readministration of the experimental
personality tests. The mean attendance for the seven
discussion sessions for Group A was 5.9 and for Group B
was 5.3.

The reference point for the treatment in Group A
was the theory behind the principle of congruity and thus
sessions here were more structured than those in Group B.
Initial sessions involved explanation of the basic concepts
of incongruity intolerance and tolerance. Attempts were
made to have the subjects rephrase these concepts in their
own words and to provide personal examples of incongruity
intolerance. The subjects entered into the discussions
particularly well and most meetings evolved into group
therapy type sessions. Refutation of the concepts pre-
sented by the writer, the group discussion leader, was
particularly encouraged and further refutation was usually
conducted by the other group members.

The actual presentation of the theoretical back-
ground in Group A proved to be the topic receiving the
least attention in respect to time allotment. Concepts
discussed were channelled along such topics as:
Incongruity as a motivating factor, individual differences

in reaction to incongruity, emotional accompaniments of
incongruity, incongruity tolerance and intolerance as
acquired traits, possible reasons for and sources of incon-
gruity intolerance, incentives for incongruity tolerance,
and limitations of incongruity intolerance and tolerance.

The maximum amount of time during the sessions was
assigned to application of the advocated concepts to
reality. Each session had an assigned area of applic-
ation which was set out as the central theme for dis-
cussion in that session. Between sessions, the subjects
were encouraged to think of personal applications of the
theory relative to central themes including: modern art,
classical and jazz music, educational practices,
discipline, religious dogmas, Karl Marx's "Communist
Manifesto", and psychotherapy. Each session the subjects
were asked if they had any further personal applications
of the principle of congruity relative to various
familial, peer and school problems.

The sessions of discussion in Group B, which were
also conducted by the writer, centered around topics of
personal interest. The subjects were encouraged to suggest
personal problems they would like to present to the group.
Much of the time in these sessions was devoted to discuss-
ion stemming from the Educational Psychology course work.
The writer tried to have available suggestions of topics

for discussion so that no session time would be wasted.

It was indicated to the subjects in all three groups that inter-personal discussion must be restricted to their own group members only. As well as being administered the post-treatment tests, Group A subjects were asked to fill out an open-ended questionnaire to ascertain their opinions on the topic of congruity striving and its personal and educational significance, the effectiveness of presentation of the topic, and personal and inter-personal changes noted as a result of the group discussions.

## C. Tests

From the theoretical framework underlying this investigation, it is possible to predict the nature of personality changes which would result from an increase in incongruity tolerance. Tests specifically designed to measure these changes have not been developed, therefore a variety of personality instruments was chosen here and attempts were made to compare personality changes measured by these instruments to those predictable from the theory underlying the principle of congruity.

## 1. Rokeach's Dogmatism Scale

As already noted, Rokeach (1960) postulated that the organization of an individual's belief system can be
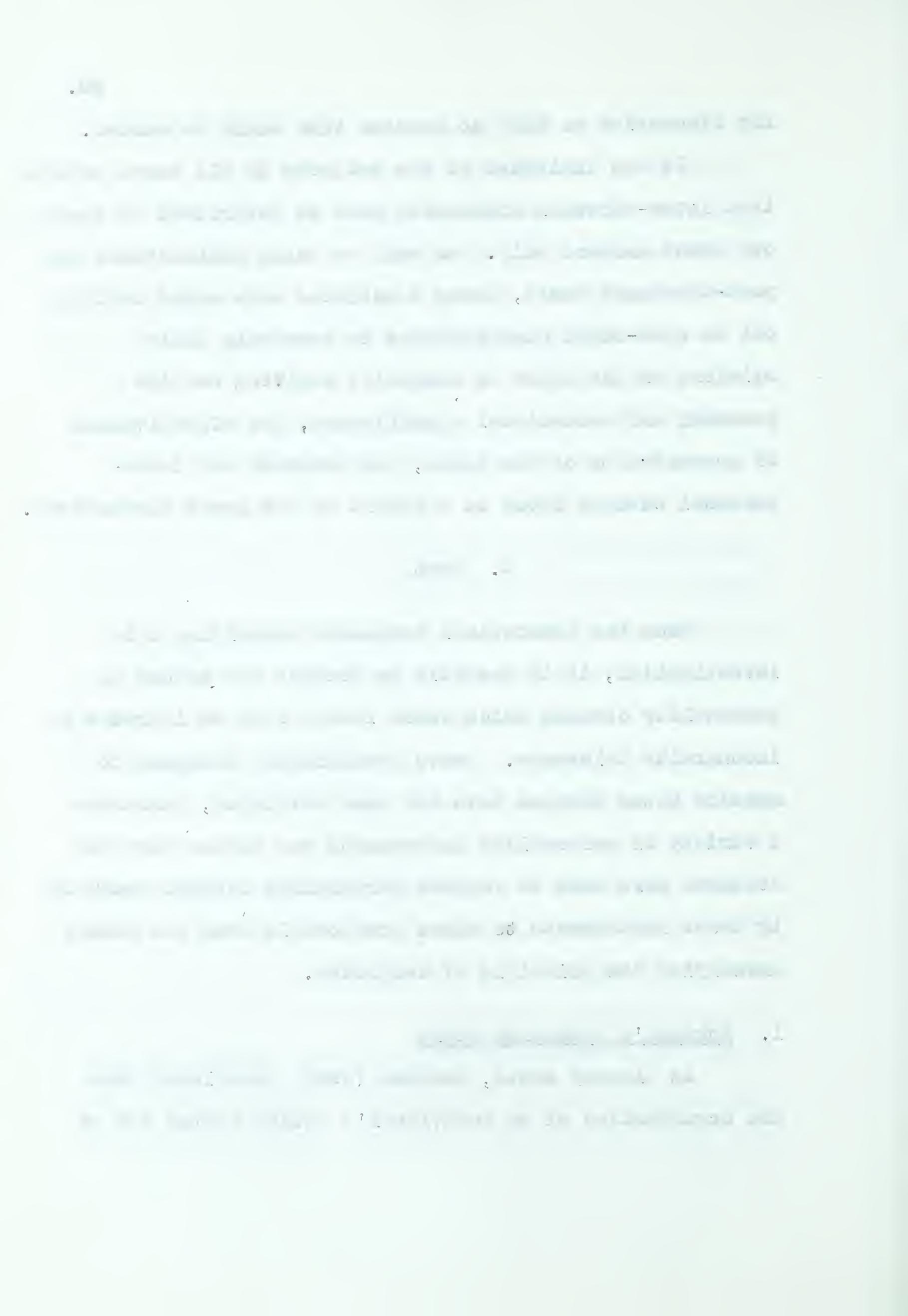
described in terms of its openness or closedness.

Rokeach states that the main purpose of his Dogmatism

Scale

> is to measure individual differences in open and
> closed belief systems.......(it) purports to
> measure general authoritarianism and intolerance.
> (p.96)

But he goes on to describe two validation studies of his

instruments with known low and high dogmatic groups and

from these he concludes that:

> it is yet premature to say to what extent our
> measures are general measures of authoritarianism
> and intolerance. (p.108)

Throughout his book, Rokeach (1960) does maintain

that the Dogmatism Scale is a measure of the extent to

which the total mind is open or closed but the thought

that this dimension could be negatively correlated with

dogmatism is not mentioned.

Linking open belief systems with tolerance of in-

congruity, the writer felt that the Dogmatism Scale would

measure personality changes related to an increase in

ability to tolerate incongruous states. Rokeach states

that on the Scale high scorers differ consistently from

extremely low scorers in ability to receive and evaluate

and act on relevant information and to form new belief

systems, thus giving support to the writer's premise that

subjects who increased in incongruity tolerance would make

lower scores on this Scale.

The Dogmatism Scale consists of forty items purportedly designed to measure the structure rather than the content of belief systems, and thus being free of orientation to any specific ideology supposedly would facilitate study of belief systems in other cultures. The Dogmatism Scale was correlated by Rokeach with an anxiety scale composed of thirty M.M.P.I. items. On seven samples, Rokeach (1960) found correlations ranging from .36 to .64. Other validity studies have not been too successful. He also reports reliability coefficients of the Scale for samples of American and English college students, English workers and American veterans. These ranged from .68 to .93, clustering around .80.

2. Edwards Personal Preference Schedule

The Personal Preference Schedule (P.P.S.) provides measures of fifteen personality variables based on two hundred and twenty-five pairs of items. The subject must indicate the statement in each pair which is most characteristic of his likes and feelings. Some attempt has been made in the P.P.S. to minimize the influence of social desirability in responses to the statements by pairing statements which are equal with respect to their social desirability scale values.

Norms have been established for both sexes for each of the personality variables from a normative sample of

seven hundred and forty-nine college women and seven
hundred and sixty college men enrolled in colleges and
universities across the United States. Norms are also
given for the consistency variable which shows how con-
sistently the subject has filled out the P.P.S.

Coefficients of internal consistency for each of
the fifteen variables of personality were obtained by co-
relating the row and column scores for each variable over
the fifteen hundred and nine subjects in the normative
group. These coefficients range from .60 to .87 and
cluster around .78. Stability coefficients based on test-
retest with a one week interval and ranging from .74 to
.88 were computed on a group of 89 students at the
University of Washington.

Intercorrelations of the personality variables based
on the complete normative sample are, in general, quite
low, indicating that the variables are relatively indepen-
dent. The two largest correlations are .46 and -.36 be-
tween affiliation and nurturance and autonomy and
nurturance respectively.

A validation study correlated the results of 106
students at the University of Washington on the fifteen
P.P.S. variables with their results on the scales of
Cooperativeness, Agreeableness and Objectivity from the
Guilford-Martin Personal Inventory and their results on

the Taylor Manifest Anxiety Scale. In general the relation-
ships were in the expected direction; correlations with
the P.P.S. variables of Endurance and Succorance consist-
ently attained significance at the .05 level.

3. Texture Preference Inventory

The Texture Preference Inventory developed by Dr.
Clifford M. Christensen of the University of Alberta is
composed of one hundred and forty-four pairs of photographs
of textures. It uses a method of presentation similar to
Edwards P.P.S. except that here the subject must indicate
which of the two textures he prefers. This experimental
test has been designed on the hypothesis that preference
for various clusters of textures is functionally related to
specific personality variables. The Inventory gives scores
on twelve scales which can be grouped into three types of
preferences, including: preference for complex, ambiguous
or unstructured design textures, preference for simple-
ambiguous textures which could be described as dull and
uninteresting, and preference for simple-structured
textures.

It is felt that this instrument would provide an
adequate measure of tolerance of ambiguity and thus it was
used in this present experiment in a secondary role to
compare its results to those attained by the tests of
Edwards and Rokeach. It is postulated that tolerance of

ambiguous textures could be related to, or an inherent aspect of, tolerance of incongruity. This test is of recent inception and thus although reliability and validity data have been collected, none has as yet been published.

## D. Testing

All three personality tests were administered by the writer to the subjects prior to treatment and eight weeks later after the treatment was completed.

# CHAPTER VI

## ANALYSIS OF DATA AND RESULTS

### A. Statistical Procedures

The differences between pre-treatment and post-treatment scores for each subject were calculated for all the variables in the three personality tests. Analysis of variance for a one-way classification, as in Ferguson (1959), was computed to examine the differences between the groups. The five percent and the one percent levels of significance were prescribed as the desired levels. Thus an F ratio equal to or greater than 3.25 and 5.21 was required for significance at the .05 and .01 levels respectively. This analysis of variance of the differences, as used by Peters (1961), was accepted as a suitable test of the first null hypothesis.

The second hypothesis involves more of a qualitative evaluation of the data and thus no further multiple comparison of the mean differences for each group on each variable was calculated. To test this hypothesis, the direction rather than the size of the observed changes were studied and compared with those expected from the theoretical framework.

### B. Results

The mean differences and the sums of squares for

each of the three groups on Rokeach's Dogmatism Scale are
given in Table I on Page 88 while the actual analysis of
variance of the differences calculated from this data is
reported in Table II on that page. Groups A and B met in
informal discussion sessions and both showed a tendency
toward increased dogmatism, attaining positive mean differ-
ences of 1.57 and 3.69, while Group C, the non-attendance
group, showed a decrease in dogmatism as measured by
Rokeach's Scale. Because of the large within group
variances, these changes over the treatment period were
far from significant.

Tables III and IV on Pages 89 and 90 give the
results compiled on Edwards P.P.S. Significant changes
were found for the personality variables of Affiliation,
Autonomy and Endurance at the .005, .01 and .025 levels of
significance respectively. Ten of the other twelve scales
showed no significant changes and no definite tendencies
in the changes observed in the three groups. Although the
differences between the groups in Succorance and Dominance
were far from significant, there does seem to be definite
trends in the changes observed. Group A, the incongruity
tolerance group, scored lower in Succorance and higher in
Dominance after treatment, while Group B increased slight-
ly on both personality variables and Group C showed no
change in Soccorance and a slight decrease in Dominance.

## TABLE I

### DATA FOR ANALYSIS OF VARIANCE OF THE DIFFERENCES BETWEEN PRE- AND POST-TREATMENT SCORES FOR DOGMATISM SCALE

| Personality Variable | GROUP A n = 14 | | GROUP B n = 13 | | GROUP C n = 14 | |
|---|---|---|---|---|---|---|
| | $\bar{d}$ | $\sum d^2$ | $\bar{d}$ | $\sum d^2$ | $\bar{d}$ | $\sum d^2$ |
| Dogmatism | 1.57 | 4,390 | 3.69 | 4,732 | -1.00 | 3,192 |

## TABLE II

### ANALYSIS OF VARIANCE OF THE DIFFERENCES BETWEEN PRE- AND POST-TREATMENT SCORES FOR DOGMATISM SCALE K = 3 N = 41

| Personality Variable | Sum of Squares | | Var'ce. Between | Var'ce. Within | F Test | Signif. Level |
|---|---|---|---|---|---|---|
| | Between | Within | df=2 | df=38 | | |
| Dogmatism | 149.31 | 12,088.2 | 74.66 | 318.11 | .24 | ns |

TABLE III

DATA FOR ANALYSIS OF VARIANCE OF THE DIFFERENCES
BETWEEN PRE- AND POST-TREATMENT SCORES
FOR EDWARDS PERSONAL PREFERENCE SCHEDULE

| Personality Variables | Group A n = 14 | | Group B n = 13 | | Group C n = 14 | |
|---|---|---|---|---|---|---|
| | $\bar{d}$ | $\Sigma d^2$ | $\bar{d}$ | $\Sigma d^2$ | $\bar{d}$ | $\Sigma d^2$ |
| Achievement | .79 | 165 | - .15 | 106 | 1.0 | 130 |
| Deference | .07 | 99 | -1.62 | 167 | -1.57 | 84 |
| Order | -1.79 | 225 | -1.87 | 196 | - .21 | 149 |
| Exhibition | 2.21 | 277 | .46 | 112 | 1.79 | 183 |
| Autonomy | 2.50 | 245 | 1.31 | 117 | -1.07 | 75 |
| Affiliation | -2.36 | 222 | 2.23 | 187 | 1.50 | 193 |
| Intraception | - .57 | 102 | -1.23 | 218 | .64 | 61 |
| Succorance | - .93 | 233 | .92 | 198 | 0 | 254 |
| Dominance | 2.57 | 428 | .54 | 161 | - .21 | 119 |
| Abasement | - .57 | 268 | .31 | 106 | -1.36 | 172 |
| Nurturance | -2.64 | 241 | 0 | 154 | -1.92 | 233 |
| Change | .36 | 109 | - .46 | 136 | .86 | 234 |
| Endurance | .21 | 119 | -3.08 | 256 | - .21 | 111 |
| Heterosexuality | 1.28 | 172 | 1.92 | 321 | .71 | 206 |
| Aggression | - .71 | 148 | .92 | 86 | -1.50 | 159 |

TABLE IV

ANALYSIS OF VARIANCE OF THE DIFFERENCES BETWEEN
PRE- AND POST-TREATMENT SCORES FOR 15 PERSONALITY VARIABLES
FROM EDWARDS PERSONAL PREFERENCE SCHEDULE K = 3   N = 41

| Personality Variables | Sum of Squares | | Var'ce. Between | Var'ce. Within | F | Signif. |
| | Between | Within | df=2 | df=38 | Test | Level |
| --- | --- | --- | --- | --- | --- | --- |
| Achievement | 10.05 | 388.10 | 5.03 | 10.21 | .49 | ns |
| Deference | 25.54 | 281.44 | 12.77 | 7.41 | 1.72 | ns |
| Order | 23.64 | 480.41 | 11.82 | 12.64 | .94 | ns |
| Exhibition | 22.29 | 455.95 | 11.15 | 11.99 | .93 | ns |
| Autonomy | 92.41 | 311.20 | 46.21 | 8.19 | 5.64 | $p < .01$ |
| Affiliation | 166.93 | 428.02 | 83.46 | 11.26 | 7.41 | $p < .005$ |
| Intraception | 24.56 | 350.95 | 12.28 | 9.24 | 1.33 | ns |
| Succorance | 23.12 | 661.86 | 11.56 | 17.42 | .66 | ns |
| Dominance | 57.95 | 611.02 | 28.98 | 16.08 | 1.80 | ns |
| Abasement | 18.69 | 514.41 | 9.35 | 13.54 | .69 | ns |
| Nurturance | 49.96 | 478.14 | 24.98 | 12.58 | 1.99 | ns |
| Change | 11.90 | 464.15 | 5.95 | 12.22 | .49 | ns |
| Endurance | 85.32 | 361.65 | 42.66 | 9.52 | 4.48 | $p < .025$ |
| Heterosexuality | 9.85 | 620.64 | 4.93 | 16.33 | .30 | ns |
| Aggression | 40.93 | 343.28 | 20.46 | 9.03 | 2.27 | ns |

TABLE V

DATA FOR ANALYSIS OF VARIANCE OF THE DIFFERENCES BETWEEN
PRE- AND POST-TREATMENT SCORES FOR
TEXTURE PREFERENCE INVENTORY

| Variables | Group A n = 14 | | Group B n - 13 | | Group C n = 14 | |
|---|---|---|---|---|---|---|
| | $\bar{d}$ | $\Sigma d^2$ | $\bar{d}$ | $\Sigma d^2$ | $\bar{d}$ | $\Sigma d^2$ |
| I | .29 | 192 | - .23 | 73 | - .71 | 124 |
| II | 2.57 | 360 | 1.77 | 159 | 1.57 | 98 |
| III | -1.71 | 292 | 1.00 | 73 | -1.57 | 98 |
| IV | -1.07 | 191 | - .15 | 76 | -1.79 | 123 |
| V | 1.28 | 90 | - .23 | 71 | - .14 | 128 |
| VI | 2.21 | 225 | - .92 | 136 | 1.36 | 189 |
| VII | .07 | 143 | - .46 | 132 | - .21 | 117 |
| VIII | 1.14 | 172 | - .54 | 83 | - .21 | 127 |
| IX | -2.29 | 324 | - .54 | 217 | - .43 | 176 |
| X | -2.36 | 377 | - .77 | 102 | - .07 | 105 |
| XI | 2.29 | 340 | 0 | 82 | -1.14 | 116 |
| XII | -2.00 | 324 | - .31 | 192 | 4.14 | 572 |

NOTE:  Variables #I, II, V, VIII, XI contain complex
         ambiguous (unstructured) textures
       Variables #III, IV, IX contain simple structured
         textures
       Variables #VII, X, XII contain simple ambiguous
         (unstructured) textures
       Variable #VI contains unstructured textures
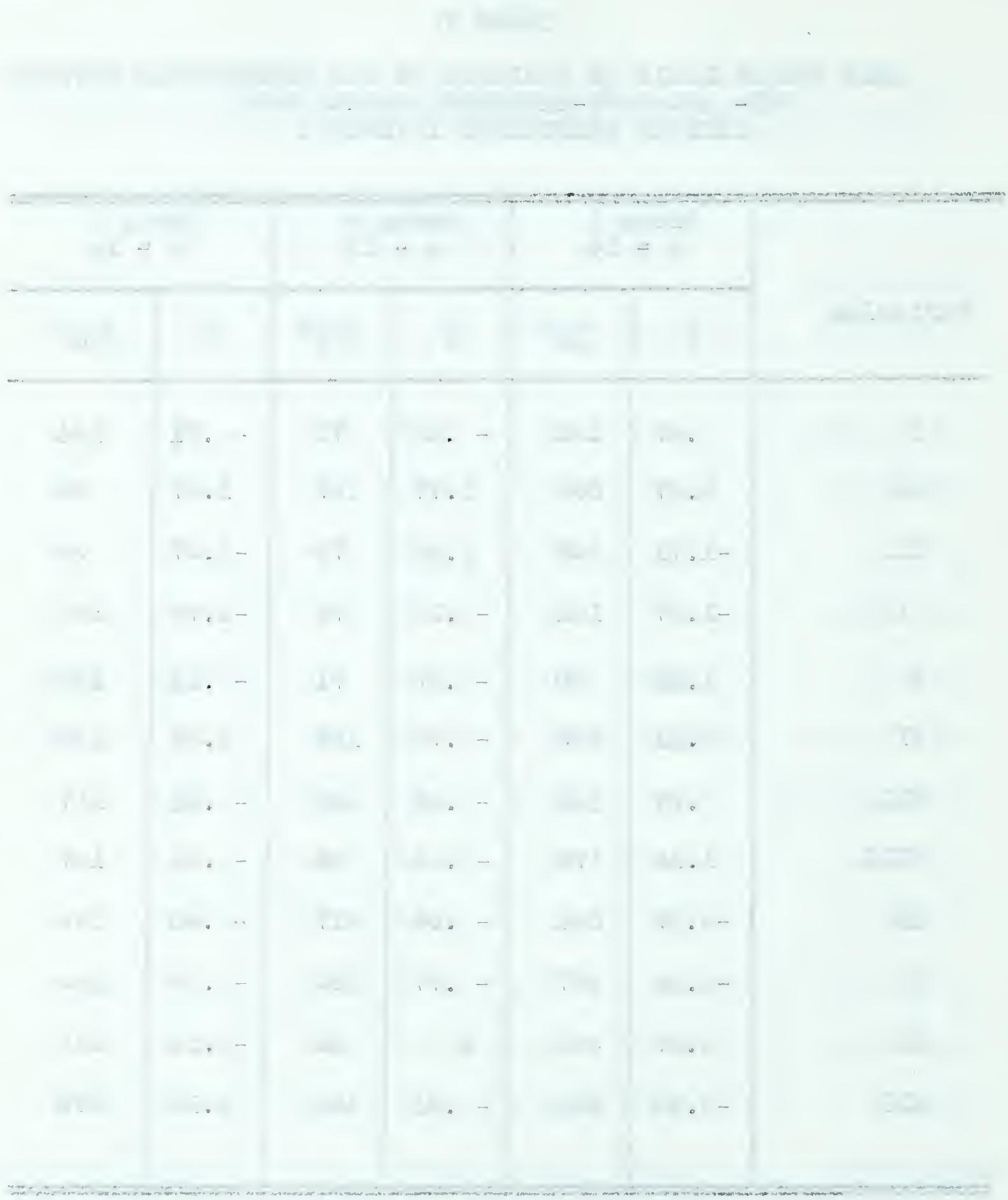
TABLE VI

ANALYSIS OF VARIANCE OF THE DIFFERENCES BETWEEN
PRE- AND POST-TREATMENT SCORES FOR 12 VARIABLES
FROM TEXTURE PREFERENCE INVENTORY  K = 3  N = 41

| Variables | Sum of Squares | | Var'ce. Between | Var'ce. Within | F | Signif. |
| | Between | Within | df= 2 | df=38 | Test | Level |
| --- | --- | --- | --- | --- | --- | --- |
| I | 6.99 | 380.03 | 3.50 | .10.00 | .35 | ns |
| II | 7.67 | 449.31 | 3.84 | 11.82 | .33 | ns |
| III | 62.16 | 374.28 | 31.08 | 9.85 | 3.16 | p<.06 |
| IV | 18.00 | 328.98 | 9.00 | 8.66 | 1.04 | ns |
| V | 20.00 | 264.88 | 10.00 | 6.97 | 1.43 | ns |
| VI | 70.29 | 444.49 | 35.15 | 11.69 | 3.01 | p<.10 |
| VII | 2.42 | 388.02 | 1.21 | 10.21 | .12 | ns |
| VIII | 19.60 | 361.52 | 9.80 | 9.51 | 1.03 | ns |
| IX | 30.08 | 637.53 | 15.04 | 16.77 | .89 | ns |
| X | 38.33 | 498.45 | 19.17 | 13.12 | 1.46 | ns |
| XI | 85.19 | 446.57 | 42.60 | 11.75 | 3.63 | p<.05 |
| XII | 281.53 | 789.98 | 140.77 | 20.79 | 6.77 | p<.005 |

NOTE:  Variables #I, II, V, VIII, XI contain complex
           ambiguous (unstructured) textures
       Variables #III, IV, IX contain simple structured
           textures
       Variables #VII, X, XII contain simple ambiguous
           (unstructured) textures
       Variable #VI contains unstructured textures

On the three variables which showed significant differences between the groups, Group A increased in Autonomy, decreased in Affiliation and remained about the same level on Endurance, increasing slightly. Group B increased about half as much as Group A in Autonomy, while Group C decreased on this variable. Both Groups B and C scored higher on the Affiliation needs over the treatment period while on Endurance Group B decreased pronouncedly and Group C made only a slight decrease.

The findings on the Texture Preference Inventory are recorded in Tables V and VI on Pages 91 and 92. Significant differences were found on variables XI and XII. Group A increased in preference for the complex ambiguous textures on variable XI and decreased in preference for simple unstructured textures which appear rather dull or uninteresting. Group C showed exactly the opposite tendencies, while Group B remained somewhat the same on both variables. The differences on variables XI and XII were significant at the .05 and .005 levels respectively. Groups A and C both decreased in preference for the simple structured textures in variable III while Group B increased in preference after treatment. This finding approached the .05 level of significance. Although not significant, the findings do reveal that Group A consistently tended to increase in preference for the complex ambiguous textures

in variables I, II, V and VIII while the other groups
tended to decrease in preference or to only increase in
preference a fraction of the increase shown by Group A.
The latter group also showed a greater decrease in
preference from pre- to post-test conditions for the
simple structured and the simple abstract textures of
variables IX and X than was shown by Group B or Group C.

## C. Discussion

The three groups differed significantly on variables
measured by Edwards Personal Preference Schedule and the
Texture Preference Inventory. Therefore, the first hypo-
thesis, that differential treatment would result in
measurable differential results, was supported. The
findings of this experiment also confirmed the second
hypothesis in that the personality variables which showed
significant changes, as well as those which exhibited
definite (but not significant) trends toward change, tend-
ed to change in directions which would be suggested by the
theoretical framework on which this study was based.

The Affiliation variable is described by Edwards
as being associated with the manifest needs for partici-
pation in groups, for formation of friendships and for
action in groups rather than individual action. The under-
lying theory considered here would hypothesize that an

increase in tolerance of incongruity would be accompanied
by a decrease in the need for affiliation and social
support. This was found to be true for Group A in this
experiment. It would also be thought that subjects
becoming more capable of controlling the arousal concomi-
tant with the occurrence of incongruity would become more
autonomous. Edwards defines the Autonomy variable in
reference to such needs as those for independence in
decision-making, freedom from convention and conformity,
and indulgence in critical thought and action. Group A
scored significantly higher on this variable after treat-
ment was completed. It is felt that the subjects in Group
A, as a result of this treatment, were more desirous of
individual thought and action and less dependent upon the
wishes or feelings of other persons. It could be speculated
that increases in autonomy could be closely correlated with
an increase in originality and spontaneity of thought and
action.

Group A also significantly increased in Endurance
or perseverance. An attempt could be made to explain this
result in terms of congruity theory by hypothesizing that
tolerance of incongruity would enable the subjects of Group
A to withstand feelings of discouragement and despair which
would usually encourage withdrawal from or cession of
activity. It could also facilitate the subjects to ignore

distractions which might impinge upon them during a task
demanding endurance.

From this theoretical framework, it would also have
been predicted that Group A would have shown significant
changes after treatment on the variables of Succorance,
Dominance and Change. The changes observed for these
variables were far from significant, especially those for
Change. Edwards describes Succorance as representing the
need for help, sympathy, understanding, and encouragement
from others. It would have been hypothesized that Group
A would score significantly lower on this variable after
treatment than the other two groups. This trend was found
in the results but it was not of much greater probability
than would be expected under normal conditions. This
trend was also shown on the variable of Dominance. Here
it would be hypothesized that the subjects of Group A would
increase significantly in needs to support their viewpoints,
to persuade others about these viewpoints, or to occupy
leadership positions. A significant increase in scores on
the variable of Change would also have been predicted for
Group A. This scale supposedly estimates the need to
experience the new and novel and even though the subjects
in Group A did increase as a group on this variable, the
subjects in Group C recorded a greater increase on the post-
treatment tests. The other variables on the Edwards test

are irrelevant to the concept of incongruity tolerance
and no further significant changes or discernible trends
were noticed.

It was believed that an increase in tolerance of
incongruity would be accompanied by significant changes in
preference for structured and unstructured textures as
measured by the Texture Preference Inventory. The results
of this study indicated that the tolerance of incongruity
group did tend to increase in preference for the ambiguous
textures and to decrease in preference for the structured
textures. This test has been constructed on the assumption
that such preferences are indicative of fundamental person-
ality traits. It is postulated that a subject who consist-
ently exhibits a preference for clusters of complex-
ambiguous or unstructured textures would have fairly high
ambiguity tolerance, a willingness to accept a state of
affairs which is subject to alternate interpretations or
outcomes. Low ambiguity tolerance should result in low
preference for unstructured textures and high preference
for simple-structured textures and those which can be de-
scribed as dull and uninteresting. Subjects possessing
this trait would desire to have everything in well-structured
terms, seeking to reduce any ambiguity to "black and white".

In this study it was thought that if the subjects
of Group A successfully increased in tolerance of incongruity,

it would also show a significant change toward ambiguity
tolerance. Two of the twelve variables on the Texture
Preference Inventory showed significant changes in this
direction. This was supported on variables XI and XII of
the Texture Preference Inventory as the subjects in Group
A showed significant changes toward increased preference
for complex-ambiguous textures on the first variable and
decreased preference for simple-unstructured textures on
the latter variable. The fact that the results on variables
I, II, V, VI, VIII, IX and X showed definite (but not
significant) trends which corroborate the significant
results attained on variables XI and XII would seem to
indicate that the subjects of Group A did increase in
ambiguity tolerance. This would in turn give additional
evidence that ambiguity tolerance is related to incongruity
tolerance.

The findings on the P.P.S. and the Texture Prefer-
ence Inventory support the hypothesis that significant
personality changes in line with incongruity tolerance
theory would result after treatment. The subjects of
Group A changed in the direction predictable from this
theoretical framework and it would appear that this group
increased in ability to tolerate the arousal contingent
upon incongruous situations.
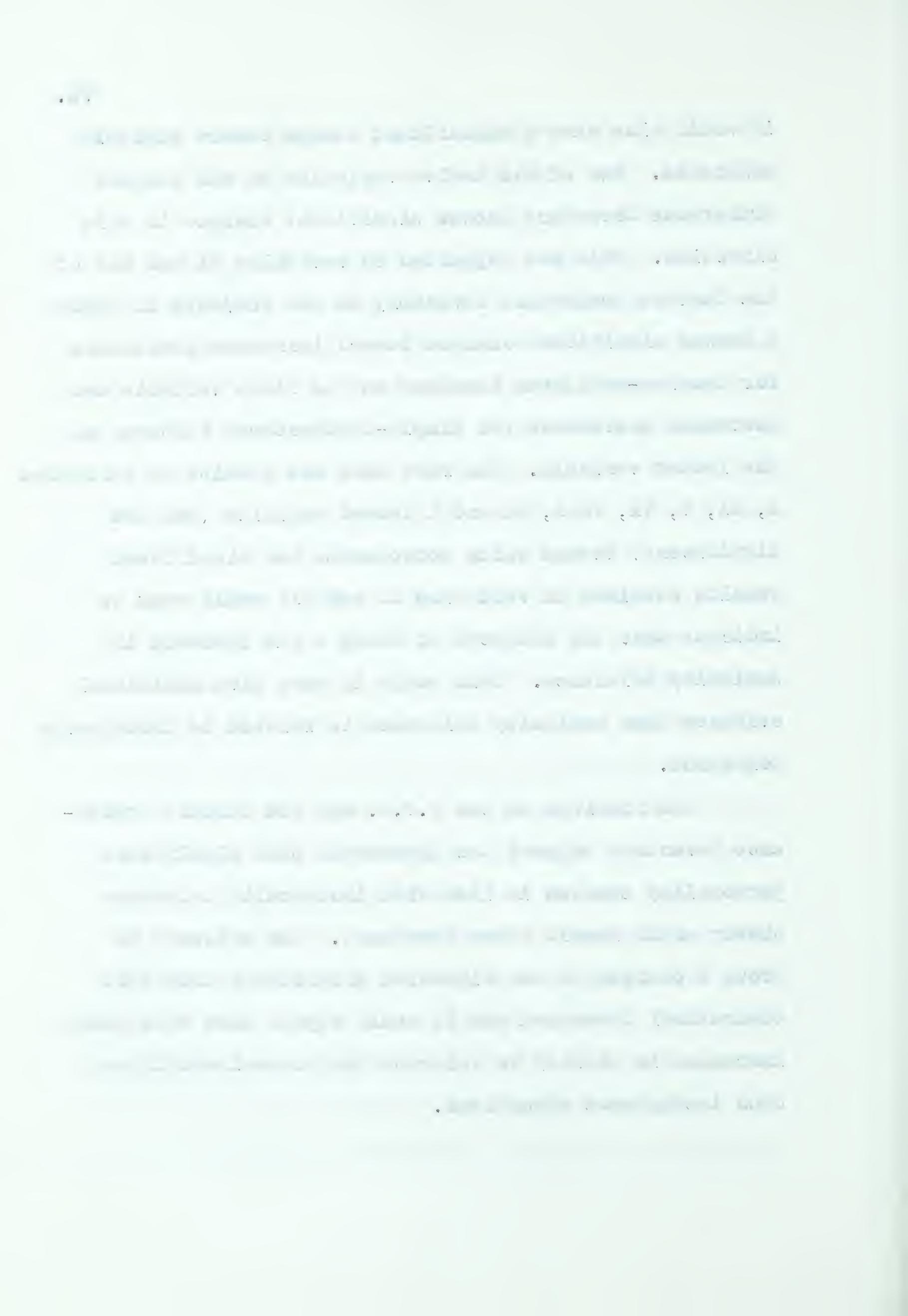
The Dogmatism Scale showed no significant changes and a discrepancy in this study or in the construct validity of this test could be inferred. It was thought that if the subjects of Group A increased in tolerance of incongruity, they would display more openmindedness and less closedness. This is the main dimension which Rokeach seeks to measure by his Dogmatism Scale and if this is a valid test, the subjects in Group A increased in closed-mindedness rather than openmindedness. The results on this test for the three groups only showed a tendency for the groups which met in weekly discussions to score higher after the treatment period. It could be suggested that since subjects in both groups had ample opportunity to express their viewpoints in these discussions, they would become somewhat more dominant, willing to argue for their point of view and desirous of persuading others if possible.

Rokeach implies that a person with open belief systems would score lower on the Dogmatism Scale (and thus be less dogmatic) than a person with closed systems. This does not seem acceptable. The possibility that many persons could be classified as openminded yet still support their belief systems quite dogmatically appears to have been disregarded by Rokeach. The results of this study would suggest that Rokeach's instrument attempts to measure the personality variables of dominance or autonomy

and that it does not provide too reliable a measure of
the extent to which individuals are dogmatically closed
to new belief systems or the degree to which they are
open. This criticism is perhaps unjustified. The only
real conclusion which can be drawn from the experimental
evidence is that the results on the Dogmatism Scale do
not support the results obtained on the other two
instruments.

No claims can be made in reference to reliability
or validity of the post-treatment questionnaire admin-
istered to Group A. The instrument did yield some
additional information regarding the effectiveness of the
treatment. When asked to describe the theory basic to
the principle of a striving for congruity, most of the
subjects expressed it in terms of conformity, thus con-
sidering mainly the social implications of the principle
of congruity. Questions on the technique used in the
sessions received opinions which mainly supported the
procedure used while a few of the subjects felt more
individual contact between leader and subject might have
helped, or some use of speakers invited for one session,
or the use of more time and examples in the discussions.

The subjects were requested to mention any behavior-
al changes they or their friends had noticed subsequent
to the treatment. Three of the subjects could not pick
out any observable changes but all of them admitted that
they would attempt to apply these principles in future.

The advantages of using such an approach to tolerance of incongruity were also noted by the subjects of Group A, and these included: greater receptivity to new beliefs, critical thinking, broadmindedness, creativity and individuality. They felt the main danger involved in applying these principles would accrue from being over-tolerant of incongruity and also from a skeptical attitude which could lead to the loss of all of one's beliefs. The advantages mentioned were similar to those mentioned throughout the group discussions but the dangers seem to represent the thoughts of each one of the subjects when they were considering an increase in incongruity tolerance. The fact that it could mean a complete forfeiting of control on their part did meet with some reservations from the subjects. All of the subjects felt children could learn to tolerate incongruity; they all believed that they, as prospective teachers, would attempt to teach their students to tolerate incongruity; and they all admitted that they would volunteer for this experiment if they were requested to do so again.

Just how objective the replies to this questionnaire were is debatable but the responses did seem to support the results obtained from the P.P.S. and Texture Preference Inventory. The treatment did appear to produce greater tolerance of incongruity. It could be noted that the

results may have been somewhat biased in that the three
groups were not of equal mean grade twelve average. How-
ever, this fact did not seem to make any difference in
the amount or type of discussion in the groups themselves
since subjects in both Groups A and B participated well.
The mean attendance of Group A was also slightly higher
than that of Group B but this could have resulted from the
fact that the sessions in Group A were necessarily more
structured than those in Group B, where the subjects were
permitted to channel the discussions themselves and this
seemed to be rather frustrating for some of them. Group B
did constitute an adequate comparison for Group A, since
it was necessary to show that the results obtained in
Group A could not have been obtained by any single group
of comparable size meeting in a similar number of sessions.

# CHAPTER VII

## SUMMARY, CONCLUSIONS AND IMPLICATIONS

### A. Summary

The purpose of this study was to attempt to synthesize theoretical and experimental statements relative to the principle of congruity and to apply the concept of incongruity tolerance in a counseling setting. The one experimental and two control groups were drawn from nine tutorial classes in an introductory course in Educational Psychology. The experimental group, designated Group A, met for seven one hour sessions during which the positive incentives for incongruity tolerance were outlined. Group B met for the same number of sessions but participated in less structured discussions on topics of mutual interest to the subjects. An atmosphere of acceptance was fostered in the discussions of both groups. Group C, the non-attendance control group, participated only by completing the pre- and post-treatment tests including: Edwards Personal Preference Schedule, the Texture Preference Inventory and the Dogmatism Scale. The findings may be summarized as follows:

1. By an analysis of variance of the differences, it was found that the groups differed significantly on the personality variables of Endurance (.025 level),

Autonomy (.01 level) and Affiliation (.005 level) as measured by the Edwards P.P.S. After treatment, the subjects of Group A scored lower on the Affiliation variable while the subjects of the other groups scored higher over the same period of time. Group A subjects showed greater increases on the Autonomy variable than the subjects of Group B while those in Group C decreased on this variable. The Endurance variable resulted in no change for Group A subjects while the other groups attained lower scores.

     2. Although the findings were not significant, the subjects in Group A did tend to attain lower scores on the Succorance variable and higher scores on the Dominance variable of the P.P.S. than did the subjects of the control groups.

     3. By an analysis of variance of the differences, it was found that the groups differed significantly on the variables XI (.05 level) and XII (.005 level) of the Texture Preference Inventory. After treatment the subjects of Group A increased in preference for the complex-ambiguous textures on the former variable and decreased in preference for the simple unstructured textures on the latter variable. The subjects of Group C showed opposite tendencies while those of Group B remained somewhat the same in preferences made on both sets of tests.

4. Similar definite, but not significant, trends were observed in the changes made by the subjects of Group A on variables I, II, V, VI, VIII, IX and X of the Texture Preference Inventory. These changes were in accord with those predictable from the basic theoretical framework elucidated here.

5. By an analysis of variance of the differences, it was found that the groups did not significantly differ on changes measured by the Dogmatism Scale.

## B. Conclusions

Since the analysis of variance indicated significant differences among the three groups used in this experiment on five personality variables from two of the three instruments used, and since definite tendencies toward change paralleling theoretically expected changes were noted on other variables from these same two instruments, and since all these changes were justifiable in terms of the concept of tolerance of incongruity, it seems reasonable to conclude that the subjects in Group A did increase in ability to tolerate the arousal concomitant with the occurrence of incongruity. Such a conclusion is of course dependent upon the veracity of these instruments as valid measures of tolerance of incongruity.

It is also acknowledged that the sample used in this investigation was only partially representative of college

students in general and thus no attempt will be made to
generalize the findings beyond the group of subjects used
in this experiment. It does seem feasible to suggest that
for the sample used here, incongruity intolerance was not
an innate, universal personality trait and that it was
demonstrated that persons similar to this sample group can
learn to tolerate incongruity if they are encouraged to
recognize the positive incentives underlying such behavior.

## C. Implications

In studying a concept such as tolerance of incongruity,
one wonders if new and significant theoretical statements
have been evolved or if an already worn-out body of theory
has only been reshaped and another trite expression been
attached to an all-too-often studied hypothetical construct.
If the latter is the case, no contribution to the existent
body of psychological knowledge would be attained and
perhaps the attempt would only have been conducive to
confusion. Attempting to visualize implications from such
an investigation obviously further involves the writer in
jeopardy, especially when these implications transcend the
boundaries imposed by the experimental data collected.
However, it now seems rather late for a display of prudence.

Since the initial purpose of this investigation was
two-fold (i.e. to synthesize all available data related to
the principle of congruity and to develop an experiment on

one aspect of the resultant theory), there are two areas
from which implications can be drawn and these will be
considered respectively.

1. Implications from the Review of the Literature

(a) There is a continuing need for explicit definition
of all terms used to describe what seems to be the same
hypothetical construct involving non-fitting cognitive
elements. In this investigation, it has been referred to
as "incongruity" but elsewhere the construct has been termed:
inconsistency, incompatibility, ambiguity, uncertainty, con-
flict, lack of conformity, imbalance, asymmetry, dissonance
and incongruence.

(b) Additional attempts will then also be necessary to
differentiate among these terms in order to ascertain
whether they all refer to the same construct and thus embody
useless overlapping theoretical expositions, whether they
refer to different specific aspects and areas of applica-
tion of the same construct, or whether they are mutually
exclusive and refer to different constructs.

(c) If there is an apparent overlapping among these
terms, as postulated here, then the construct involved must
be subjected to more rigid experimental study than was
reported in any of the studies reviewed. One basic maxim

which must be observed by such experimentation is that
samples which are more representative of the total popu-
lation must be used to enable wider application of results.

(d) Further research would seem imperative to determine
whether the phenomenon of striving for congruity, intolerance
of incongruity, is a universally inherited behavioral trait
or one which is acquired from interaction in certain
environmental settings, such as in the Western culture.

(e) There is also a glaring need for the development
and documentation of an instrument which can provide a valid
estimate of the presence and extent of an ability to
tolerate incongruity.

(f) Some attempt must be made to proceed beyond the
hypothetical stages as exemplified in this investigation so
that a more objective understanding of the diverse outcomes
of both an ability and an inability to tolerate incongruity
can be ascertained. This would probably necessitate an
experiment of fairly lengthy duration, one which is perform-
ed with the realization that individual differences exist
for such personality traits.

(g) The motivational components of the behavioral
phenomenon of striving for congruity, a topic which was
neglected by most theorists reviewed here, must also be
studied in an experimental setting. Perhaps it would be

verified that the basic motive behind a striving for congruity
is the desire to avoid the feelings of uncertainty and in-
security arising from not knowing or understanding a state
of affairs, especially when it is important for the security
of the individual involved or when it runs contrary to his
expectations.

(h) It should be recognized that congruity is a
descriptive term indicative of relationships among cognitive
elements which arise from intrapersonal and interpersonal
experiences. It is difficult to see how this principle of
congruity could be studied without due attention being given
to all three classes of contributing factors: interpersonal,
intrapersonal and cultural or normative forces.

2. Implications from the Experiment

(a) It was concluded that the subjects in this exper-
iment learned to tolerate the arousal accompanying incon-
gruity but in order for this conclusion to be deemed
applicable to human behavior in general a more extensive
representative sample of subjects must be used and followup
studies must be conducted to determine the extent of learning
over a longer period of time.

(b) Perhaps this tolerance of incongruity is the funda-
mental principle of all successful psychotherapies and
involves nothing more than learning to live with tension,

recognizing incompatibilities and accepting them as such without attempts to be defensive. Conflict such as is incurred in incongruous situations is not necessarily disruptive and can serve as an important motivational force as described in Berlyne's (1960) concept of epistemic behavior.

(c) It could also be postulated that tolerance of incongruity is a function of the level of intelligence (i.e. that persons at the lower levels would not be capable of tolerating incongruity). Perhaps incongruity itself could be classified into lower-order and higher-order subdivisions, the latter involving the higher mental processes and being particularly difficult for persons of lower mental capacities to handle.

(d) More experimentation is needed in line with Harvey, Hunt and Schroder's (1961) theoretical descriptions of the structure of conceptual systems and the progression of conceptual functioning along the concrete-abstract dimension. This reference seemed most fundamental to the theory underlying the principle of congruity and it would seem to the writer that any further research in this area should make this work the initial springboard. Rokeach (1960) linked dogmatism with closedmindedness, a union which was not supported by this present investigation and which was also disclaimed by Harvey, Hunt and Schroder (1961). These

theorists claim that the more abstract the conceptual

system, the greater the resistance within that system to

increasing closedness. Further, they state that

> The more abstract levels of functioning are
> characterized by the ability to hold strong beliefs
> and to be ego-involved, while remaining open to
> alternate evaluations and differentiations, that is,
> to hold strong beliefs but to be unprejudiced. Such
> functioning permits ego-involvement without the usual
> accompanying disadvantages of bias, subjectivity, and
> distortion. (p.195)

To the writer, these "more abstract levels of functioning"

would be characterized by the ultimate in tolerance of in-

congruity and thus such persons could be quite dogmatic in

support of their beliefs and expressed opinions, yet quite

open to possible refutation of these. Such seemed to be

apparent among the subjects of Group A in this present

experiment.

(e) It would then seem plausible that capable indiv-

iduals should be encouraged to progress toward the more

abstract levels of cognitive functioning and thus become more

tolerant of incongruity. This could be regarded as the

primary function of psychotherapy.

(f) The educational implications of such statements

are manifold. Openness and progression toward the ability

to tolerate incongruity could be impeded in children by the

encouraging of rigid identification with parental and

authoritative (e.g. teachers) models, or by absolute

presentation of materials and facts with no opportunity allowed for refutation, or by requiring students to learn only what is correct and desired by the instructor, or by requiring on examinations absolute regurgitation of material expounded by the instructor.

(g)  It could also be postulated that homogeneous grouping of students could be more successfully attained by the method of separating students according to their respective levels of conceptual functioning or even by their abilities to tolerate the arousal accompanying incongruity, providing valid measures of such variables could be obtained.  Grouping for group therapy could be facilitated by such a method also.

(h)  This investigation has postulated that tolerance of incongruity is positively correlated with creativity, independent and critical thinking, and flexibility.  It has also been suggested that conceptual structures characterized by such traits are the desirable and valuable goals toward which educational and guidance services should encourage students to progress.  This could be accomplished by providing the environmental conditions which will maximize the opportunity for the cultivation of these qualities. Such statements are relatively unsupported experimentally and must be corroborated by further research.  If they are

supported, however, much stress will be placed upon the

educator and the counselor to possess these traits them-

selves, first, before any attempt is made by them to help

others.

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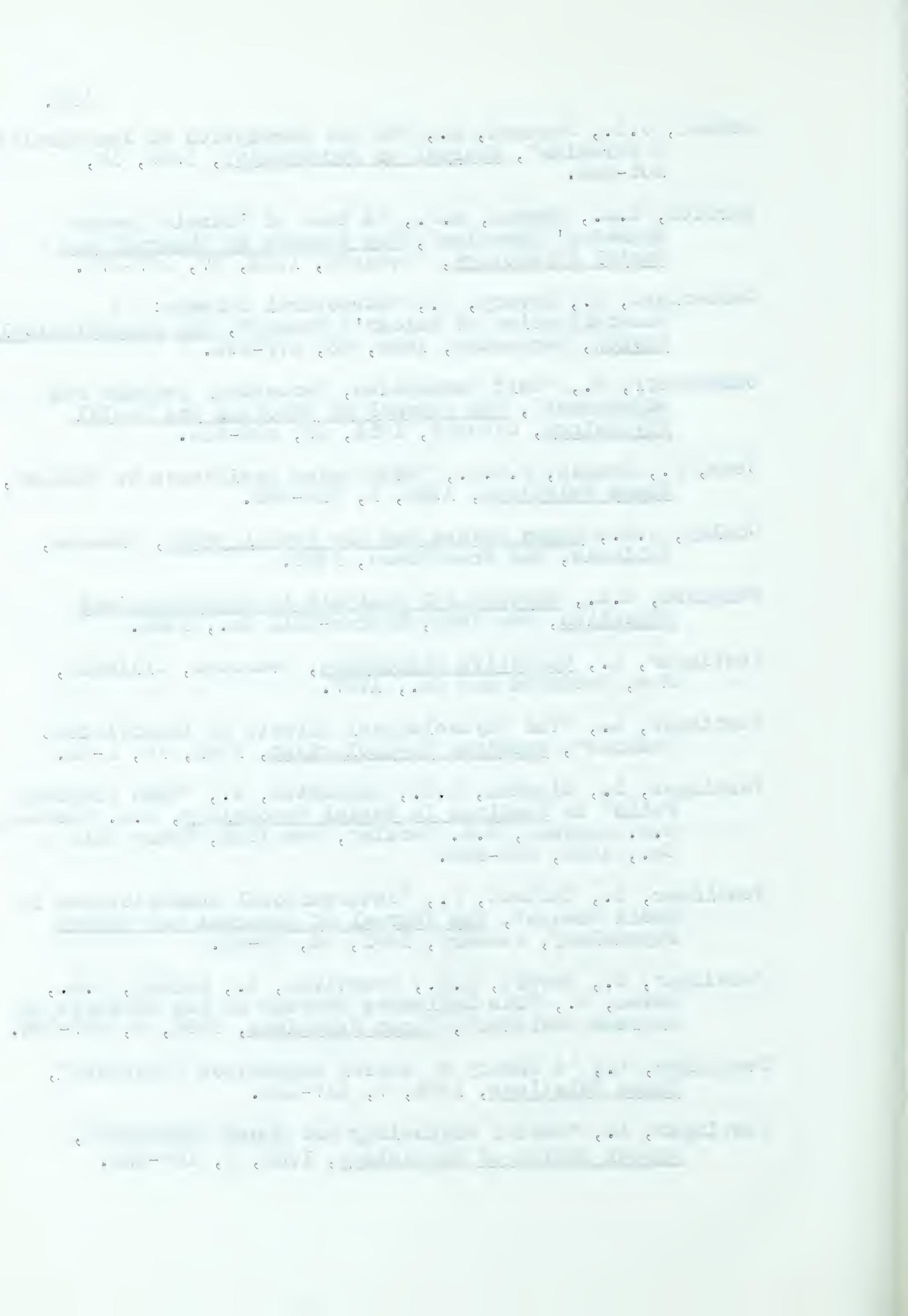
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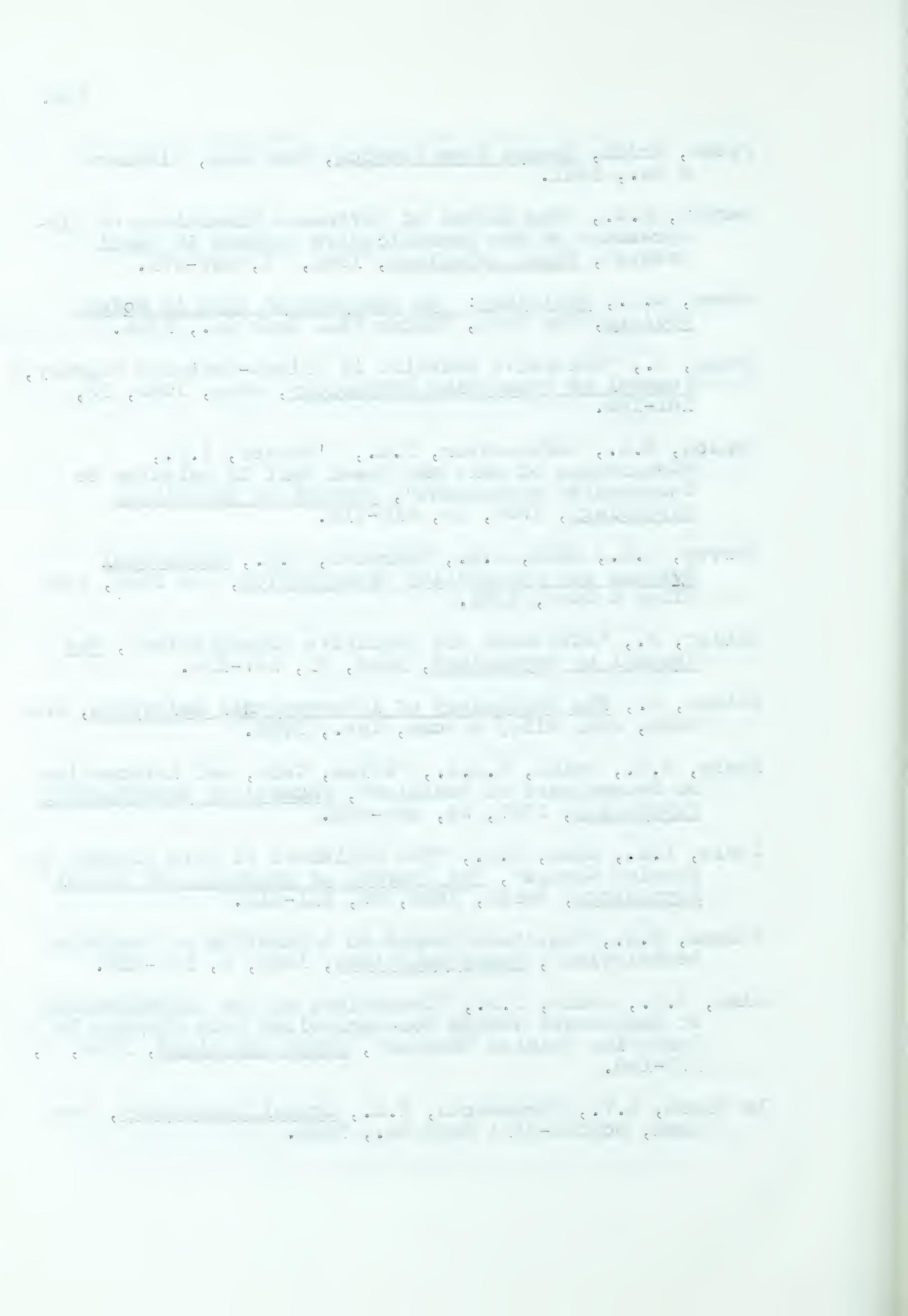
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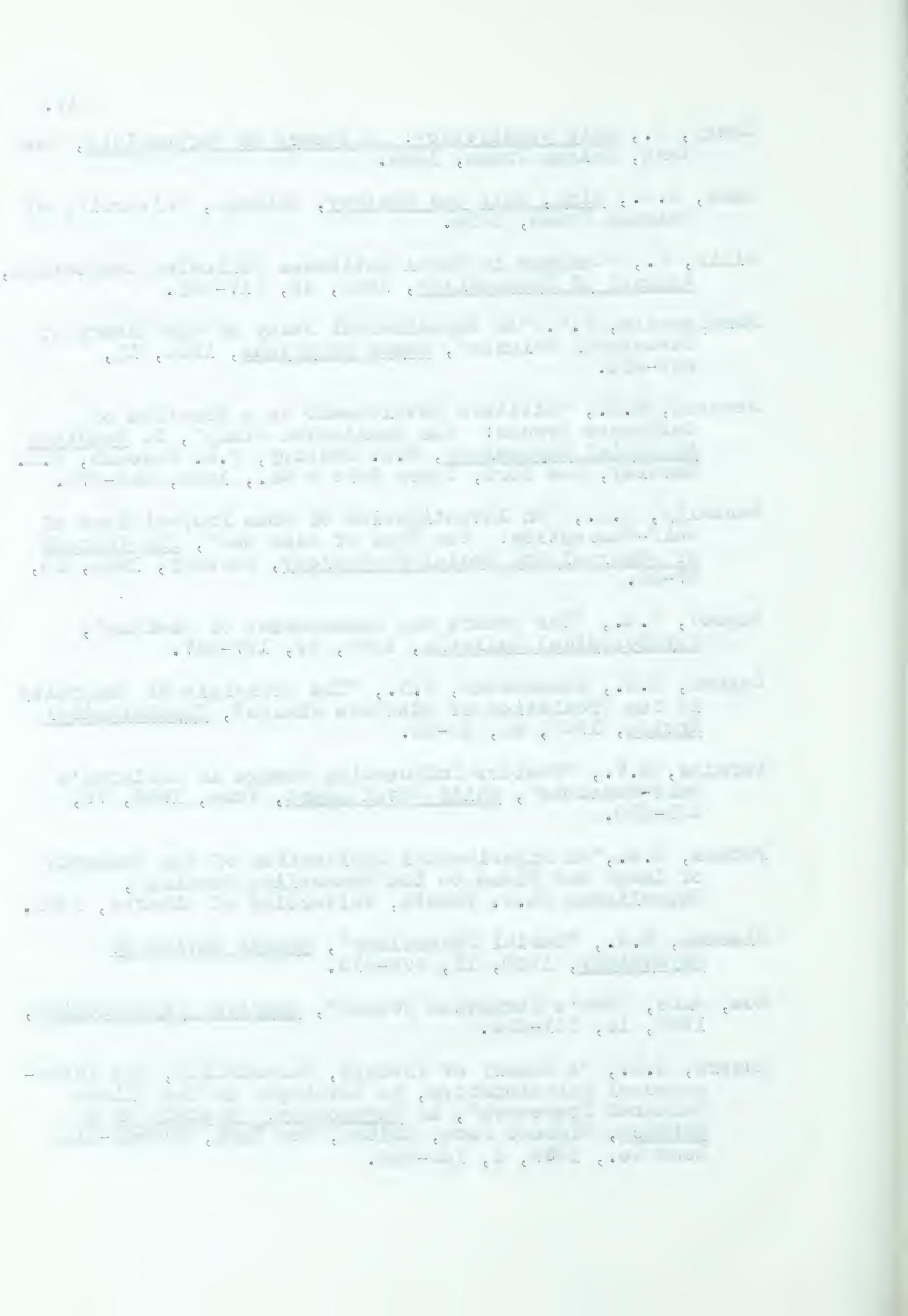
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